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A longitudinal investigation of complete mental health during recovery from drug and alcohol problems

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A longitudinal investigation of complete mental health during recovery from drug and alcohol problems

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by

Breanna J. McGaffin

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CERTIFICATION

I, Breanna J. McGaffin, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy (Clinical Psychology), in the School of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Breanna J. McGaffin

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DEFINITION OF KEY TERMS

Substance use: The terms substance use disorders and substance misuse in this thesis refer to the use of one or more substances leading to clinically significant impairment or distress as proposed in the Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 2013).

Mental health and mental illness: Mental health and mental illness are used throughout this article to refer to two distinct constructs. Mental health refers to the model of Complete Mental Health proposed by Keyes (2007), encompassing social, emotional, and psychological wellbeing. Mental illness refers to disorders affecting mood, thinking and behaviour as classified by the DSM (American Psychiatric Association, 2013).

LIST OF PUBLICATIONS FROM THIS THESIS

Publications

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ABSTRACT

Comprehensively capturing the social, emotional and psychological wellbeing of individuals with substance use disorders is important to accurately represent the experience of recovery beyond just abstinence from alcohol and other drugs. Complete mental health is considered the presence of emotional wellbeing in conjunction with high levels of social and psychological functioning. This thesis aimed to investigate complete mental health in individuals seeking treatment for alcohol and drug misuse, and the social capital variables which contribute to improved mental health. Three empirical studies investigated the relationship between complete mental health, civic and social engagement in the context of entry to, and discharge from, residential substance abuse treatment provided by The Australian Salvation Army.

Study 1 described the levels and rates of mental health for 794 individuals (79.5% male) at entry to treatment, and 3- and 12-month post-discharge follow-ups. Results indicated at entry to treatment there were higher rates of languishing compared to population estimates, yet greater rates of flourishing at all time points compared to community normative data. Mental health was rated significantly higher by individuals who were abstinent than those that had used substances at 3-month post-discharge follow-up. Additionally, results suggested that improved mental health was a consequence of reduced severity of alcohol and other drug abuse, and followed reductions in cravings.

Study 2 investigated the association between community participation and mental health for 1815 individuals (70% male) at entry to residential treatment. Results indicated that despite participants having lower levels of community participation compared to Australian community population norms, those participants who were experiencing flourishing mental health had higher rates of community participation than Australian norms. Keeping in touch with friends and family was the most common form of community participation. Informal

social connectedness and civic engagement were the strongest predictors of mental health over and above more traditional substance use outcomes such as cravings.

Study 3 assessed the longitudinal connections between social networks, substance use and complete mental health. Participants comprised the same 1815 participants from Study 2 at entry to treatment but expanded on this by focusing on 188 participants (71% male) who had provided complete responses to a 3-month post-discharge follow-up interview. Results indicated that changes in general support provided from friends and informal social connectedness were the strongest social predictors of mental health at 3-month follow-up. Mediation analyses indicated change in friends' support for abstinence had no effect on mental health while change in general social support had a direct effect on mental health. Only the relationship between change in informal social connectedness and mental health was partially mediated by alcohol use severity.

Together the empirical studies provide a unique insight into how complete mental health relates to social capital variables and recovery from substance misuse. While informal social connectedness and general support from friends were most strongly related to mental health, there is a need for further research that has longer longitudinal follow-up durations. Additionally, identifying population norms for Australian complete mental health prevalence would help contextualise findings for participants seeking treatment for addictions. A discussion of the clinical and policy implications of this research is included, with a particular focus on how the findings can inform person-centred approaches to treatment.

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CHAPTER ONE

INTRODUCTION AND AIMS

1.1 RECOVERY FROM PROBLEMATIC SUBSTANCE MISUSE

The term "recovery" has historically been used in the substance use disorders (SUDs) field when referring to abstinence (Garbutt, West, Carey, Lohr, & Crews, 1999; Laudet & White, 2010; Rudolf & Watts, 2002). However, while abstinence is thought to be necessary for recovery, it is not sufficient (Borkman, Stunz, & Kaskutas, 2016; Schwarzlose et al., 2007). Indeed, for some individuals, improvements can occur without abstaining (Donovan, Mattson, Cisler, Longabaugh, & Zweben, 2005; Laudet & White, 2010). The definition of recovery has recently shifted to a wellness-oriented conceptualisation (Garbutt et al., 1999; Rudolf & Watts, 2002). For example, the Substance Abuse and Mental Health Services Administration (SAMHSA) define recovery as "a process of change through which individuals improve their health and wellness, live a self-directed life and strive to reach their full potential" (SAMHSA, 2011).

Comprehensively capturing the social, emotional and psychological wellbeing of individuals with SUDs is important to accurately represent the experience of recovery beyond just abstinence (Donovan et al., 2005; Laudet & White, 2010; White, 2007). Quality of life (QoL) is an increasingly accepted wellness outcome for treatment (Malet, Llorca, Beringuier, Lehert, & Falissard, 2006) and has been adopted in other areas, including the mental health field (White & Davidson, 2006). However, concerns have been raised regarding the theoretical underpinnings, operationalisation and standard measurement of QoL (Donovan et al., 2005). Corey Keyes developed a conceptualisation of complete mental health that encompasses social, emotional, and psychological wellbeing (Keyes, 2007) which may address some of the limitations of QoL. Keyes's work addresses the erroneous assumption

that the absence of mental illness is the presence of mental health (Keyes, 2007). Keyes's complete state model of mental health delineates mental health and mental illness as two distinct continua (Keyes, 2005b). Mental health is considered the presence of emotional wellbeing in conjunction with high levels of social and psychological functioning (Keyes & Westerhof, 2012). Given the high prevalence of comorbidity between mental illness and SUDs (Mortlock, Deane, & Crowe, 2011), there is promise that the concept of complete mental health can be applied in the context of substance abuse (Bowersox, Saunders, & Wojcik, 2009). That is, it can provide functioning and wellbeing information beyond traditional substance use outcomes which can help address the assumption that developing a SUD decreases ones wellbeing, while treatment improves it (Donovan et al., 2005).

Recent research has begun investigating internal and external resources of those in recovery from alcohol use disorders and their mediating role in the relationship between stress and QoL (Laudet, Morgen, & White, 2006). These resources are referred to as recovery capital and include resources such as community participation and social support (Granfield & Cloud, 1999).

1.1.1 Complete mental health

Mental health as more than the absence of mental illness has been relatively unexplored (Provencher & Keyes, 2011). Keyes' concept of complete mental health, operationalised as a syndrome of symptoms of positive feelings and functioning in life (Keyes, 2002), provides a complementary approach to just reducing illness or suffering (Keyes, 2013). It refers to two distinct, yet complementary processes (Provencher & Keyes, 2011). Hedonic or emotional wellbeing refers to positive emotions towards one's life, such as happiness and life satisfaction. Eudaimonic wellbeing refers to positive social and psychological functioning, a sense of engagement and fulfilment in one's private and social life (Keyes, 2002). An

example of social wellbeing is when an individual sees society as meaningful and understandable while psychological wellbeing includes personal growth and environmental mastery, being able to shape their environment to meet their needs (Ryff & Keyes, 1995). The three dimensions of wellbeing align with the World Health Organisations definition of positive mental health, which distinguishes between feelings of wellbeing (emotional wellbeing), effective private functioning (psychological wellbeing) and effective social functioning (social wellbeing) (World Health Organisation, 2005).

From responses given on the Mental Health Continuum (MHC; the measure for mental health) an individual can be categorised as flourishing, languishing or moderately mentally healthy. To be flourishing in life, individuals must exhibit high levels of emotional wellbeing and positive functioning; in contrast, a person who is languishing will exhibit low levels (Keyes, 2002). Individuals who do not meet the criteria for flourishing or languishing are considered moderately mentally healthy (Keyes, 2002). It is theorised that flourishing and moderate mental health are a source of resilience for an individual, which can act as a buffer against stressful life events (Keyes, 2002). Stress and stressful life events are known predictors of substance abuse relapse (Laudet, Magura, Vogel, & Knight, 2004b; Sinha, 2001; Titus et al., 2002).

Several well validated instruments assessing emotional, psychological and social wellbeing were combined to form the mental health continuum (Keyes, 2002) as there was a need to form a brief measure covering all three dimensions (Lamers, Glas, Westerhof, & Bohlmeijer, 2012). The psychological and social wellbeing subscales are well validated, reliable and the factor structures have been confirmed with representative samples of American adults (Keyes, 2002; Ryff & Keyes, 1995). In a representative sample of 1,662 Dutch adults the MHC-SF was found to have high internal and moderate test-retest reliability (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011). Additionally, a confirmatory

factor analysis verified the three factor structure of emotional, psychological and social wellbeing (Lamers et al., 2011). In a second sample of 1,932 Dutch adults the MHC-SF was completed at four time points over nine months (Lamers et al., 2012). The results indicated the measure is highly reliable over time with no differential item functioning across the time points (Lamers et al., 2012). The MHC-SF has consistently been found to be a reliable and valid measure of positive mental health, with a three factor structure even across cultures (Guo et al., 2015; Keyes et al., 2008; Lupano Perugini, de la Iglesia, Castro Solano, & Keyes, 2017; Rafiey et al., 2017; Robitschek & Keyes, 2009; Westerhof & Keyes, 2010). Given both the statistical reliability of the measure and the adherence to theoretical foundations of comprehensive subjective wellbeing, the MHC-SF was chosen to investigate complete mental health in the current research,

Flourishing, languishing and moderate mental health can all occur in the presence or absence of a mental illness (Keyes, 2002). In the context of drug and alcohol addiction, it is possible for those who no longer use drugs or alcohol to still have poor mental health. Historically this situation was captured by the concept of the dry drunk. The phrase is a lay term, coined early in Alcoholics Anonymous history (AA) (Flaherty, McGuire, & Gatski, 1955) and is the notion that a person can be abstinent from substances yet still experience the emotional and functional problems that were encountered during their addiction (Gogek, 1994). It is theorised that there is a subset of individuals who, when discharged from treatment, are unable to attain satisfactory wellbeing, purpose in life, or flourish. Experiences such as this suggest that, mental health may prove useful in characterising the experience of those in recovery in order to promote flourishing.

Research investigating Keyes's model of mental health has identified that the presence of flourishing mental health has considerable benefits, including fewer work days lost, fewer limitations in daily functioning and lower health care utilisation (Keyes, 2007). Conversely,

languishing mental health is associated with poor emotional health and high limitations of daily living (Keyes, 2007). However, findings from Keyes and colleague's research are drawn from a community sample (for example Keyes, 2002; Keyes, Dhingra, & Simoes, 2010; Keyes & Westerhof, 2012; Robitschek & Keyes, 2009) and need replication in samples with addictive disorders. A drug and alcohol clinical treatment seeking sample has not previously been evaluated.

1.1.2 Recovery capital resources

The idea that positive consequences can emerge from social and community relationships is not new (Portes, 1998). The phenomenon was captured by the concept of social capital, which had its beginnings in sociology (Bourdieu & Wacquant, 1992; Coleman, 1988; Putnam, 2000) but has also been utilised in economic and financial fields (Knorringa & Van Staveren, 2007; Tuominen, Tuominen, Tuominen, & Jussila, 2013). The popularity of social capital has meant the history, definition and measurement of the concept is diverse and sometimes problematic (De Silva, McKenzie, Harpham, & Huttly, 2005; Portes, 1998). The first contemporary theorising on social capital came from Pierre Bourdieu, defining it as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition" (Bourdieu, 1985, p. 248). Bourdieu's work focuses on the benefits individuals accrue from their participation in groups and the need for deliberate socialising in order to create the resources (Bourdieu, 1985). A second notable advance in social capital came from James Coleman who suggested that varying levels of capital resources are transferred from parents and peers (Coleman, 1988). Coleman's (1988) definition of social capital is considered vague and obscures some of the concepts purported by Bourdieu (Portes, 1998). A third proposal of social capital came from Robert Putnam (1995) who moved away from relationships between

individuals or individuals and groups, to the level of association and participation in a community. Putnam defined social capital as the "features of social organisations such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 67).

Additionally, there are multiple dimensions within the concept of social capital (De Silva et al., 2005). There are three posited types of social capital: bonding, bridging and linking (Gittell & Vidal, 1998; Szreter & Woolcock, 2004). Bonding social capital refers to relationships amongst members of a network who are similar in some form (Putnam, 2000). Bridging social capital refers to relationships amongst people who are dissimilar, for example, age, socio-economic status, race/ethnicity and education (Szreter & Woolcock, 2004). Linking social capital is the extent to which individuals build relationships with institutions and individuals who have relative power over them (e.g. to provide access to services, jobs or resources) (Szreter & Woolcock, 2004; Woolcock, 2001).

While the theoretical foundations of recovery capital arises from the work of Bourdieu, Coleman, and Putnam (Hennessy, 2017), the model of recovery capital in an addictions context comes from a qualitative study of 46 individuals (Granfield & Cloud, 1999). These individuals had avoided formal treatment to address their substance use and were considered 'natural recoverers' (Granfield & Cloud, 2001). The resources these individuals had accumulated prior to and throughout their period of addiction (referred to initially as social capital) were conceptualised as recovery capital (Granfield & Cloud, 2001). For their sample, as well as others, it was argued that recovery capital included both internal and external resources a person can utilise to initiate and maintain their recovery (Granfield & Cloud, 1999). The resources are posited to exist along a continuum from positive to negative. Positive recovery entails utilising such resources in the initiation and maintenance of recovery (Cloud & Granfield, 2008). Negative capital may be, for example, personal

circumstances or behaviours that may maintain substance use, impeding the ability to successfully terminate substance use (Cloud & Granfield, 2008). Providing specific examples of positive and negative recovery capital can be somewhat difficult as resources differ between individuals. For example, age can be positive or negative for an individual. Adolescents may not have had opportunities to develop interests and experiences outside of substance use (negative), conversely they may have had limited involvement with substance use subculture and have good physical health (positive) (Cloud & Granfield, 2008). They are dependent on the individual.

The recovery capital resources are organised into four broader categories of social, physical, human and cultural capital (Best & Laudet, 2010; Cloud & Granfield, 2008). The focus of the proposed research is on social capital. Social capital contains both social network support and community engagement. The support and connections these relationships provide may be why social capital is seen as the critical determinant for increasing personal strengths and accessing the resources in physical, human and cultural capital (Best & Laudet, 2010).

While community participation is considered to be "what people do" to engage in society (Harpham, Grant, & Thomas, 2002), social network support is a more multifaceted concept (Cohen, Underwood, & Gottlieb, 2000). There are two distinctions to note about support, the first is between *structural* and *functional* support. Structural support denotes the features of an individual's social network, for example, the number or types of relationships (Cohen et al., 2000). Functional support is the meaningful and useful aid that network members provide one another (Cohen et al., 2000). The second distinction delineates *general* and *specific* support. General support is usually assessed by integrating structural and functional elements, such as the number of people in a network and the meaningfulness of their support (Cohen et al., 2000). Specific support relates to certain functions, for example, support for abstaining from substance use (Beattie & Longabaugh, 1997).

1.2 THEORETICAL CONSIDERATIONS

Recovery capital concepts originated in economic and sociological fields (Bourdieu & Wacquant, 1992; Putnam, 2000); however, explicit criteria that qualify a particular construct as a recovery capital resource have not been established. Recent attempts have been made to investigate and operationalise recovery capital in substance misuse contexts (Best, Beswick, Hodgkins, & Idle, 2016a; Groshkova, Best, & White, 2013; Morton, O'Reilly, & O'Brien, 2016). For example, the Assessment of Recovery Capital measure was developed based on discussions with practitioners, service user groups, focus groups and individual interviews (Groshkova et al., 2013). The resulting instrument covers 10 domains assessing 'recovery strengths'; substance use and sobriety, global psychological health, global physical health, citizenship and community involvement, social support, meaningful activities, housing and safety, risk-taking, coping and life functioning, and recovery experience (Groshkova et al., 2013). While the research and development of measures is promising, there is a lack of clear criteria to help identify what variables could be considered recovery capital resources. Additionally there is a lack of theory to help clarify which elements of recovery capital are of most importance and how they work to improve outcomes for individuals experiencing SUDs.

One theory that could provide a framework for considering the role of recovery capital is the Broaden and Build theory (Fredrickson, 2001). Broaden and Build theory posits that positive emotions broaden immediate thought-action repertoires and build stable personal physical, intellectual, social, and psychological resources (Fredrickson, 2001). These resources are similar to those described in the recovery capital literature and are thought to be like "reserves", able to be drawn upon to improve the odds of coping in later situations (Fredrickson, 2004). Negative emotions are theorised to narrow thought-action repertoires,

although this can be of benefit in situations that threaten survival (e.g. to escape or attack; Fredrickson, 2001). It may be that recovery capital operates by broadening possible response options, and building embodied and objectified forms of capital. These resources are able to be drawn upon to cope with stressful situations (Fredrickson, 2000; Fredrickson, 2001), a known predictor of relapse (Laudet et al., 2004b).

1.3 OUTLINE AND AIMS OF THE THESIS

The thesis consists of three sequential empirical studies that broadly aim to examine the model of complete mental health and the critical social capital resources known to contribute to improved mental health (Best & Laudet, 2010). Chapter 2 presents the results from a study that examined the level and rates of mental health within an Australian sample of people seeking residential treatment for problematic substance use. The relationship between substance use and mental health is also examined. Changes in mental health from entry to treatment to 3- and 12-month post-discharge follow-up are described. These changes are also investigated in the context of use or abstinence from substances as indicated at a 3-month follow-up. Model testing for the temporal relationships between mental health and indices of substance use severity and cravings is also conducted.

Chapter 3 comprises Study 2 which builds on the findings of Study 1 by investigating the association between community participation and mental health at entry to residential treatment for substance misuse. Levels of community participation have been found to have a positive relationship with mental health (Phelan, Link, Stueve, & Pescosolido, 2000; Skrabski, Kopp, & Kawachi, 2003; Ziersch, 2005). However, the majority of this research has been conducted in general community samples (e.g. Ding, Berry, & O'Brien, 2015). Frequency of community engagement was differentiated by mental health categories, the presence (flourishing) or absence (languishing) of social, emotional and psychological

wellbeing. The study also examined the extent to which community participation and support from friends predicted mental health.

Chapter 4 comprises Study 3, which investigates the longitudinal connections between social networks, substance use and complete mental health. The ability of changes in support from friends' and family between treatment entry and 3-month follow-up to predict mental health was assessed. This study extends the research on social support and mental health by testing whether these relationships are mediated by substance use severity.

Chapter 5 provides an integrated discussion of the results from the three studies. Limitations of the research are reviewed. Future directions for research and clinical implications are discussed.

CHAPTER TWO

STUDY 1: Flourishing, languishing and moderate mental health: Prevalence and change in mental health during recovery from drug and alcohol problems

This chapter has been published as a paper in the journal *Addiction Research & Theory* (see Appendix F for published version).

Modifications were made to this published paper to conform to the thesis review process.

McGaffin, B.J., Deane, F. P., Kelly, P. J., & Ciarrochi, J. (2015). Flourishing, languishing and moderate mental health: Prevalence and change in mental health during recovery from drug and alcohol problems. *Addiction Research & Theory, 23*(5), 351-360. doi: 10.3109/16066359.2015.1019346

2.1 INTRODUCTION

"Recovery" is the aim of SUD treatment services (Laudet & Humphreys, 2013). What constitutes or defines recovery has varied considerably. Historically abstinence has been one of the primary outcomes of recovery from SUDs (Garbutt et al., 1999; Laudet & White, 2010; Rudolf & Watts, 2002). However, improvements in wider areas of functioning (such as wellbeing) can occur without abstaining (Laudet & White, 2010). The SAMHSA recently defined recovery as "a process of change through which individuals improve their health and wellness, live a self-directed life and strive to reach their full potential" (SAMHSA, 2011). SAMHSA also identified four dimensions of life that promote recovery: health (physical and emotional, including abstinence), home (a safe residence), purpose (meaningful activity) and community (social network) (SAMHSA, 2011).

Consistent with this definition, research and treatment for many disorders are adopting wellness outcomes as indicators of recovery, predominantly with mental illness (e.g. schizophrenia, depression), and more recently substance misuse (Best et al., 2012; De Maeyer, Vanderplasschen, Lammertyn, van Nieuwenhuizen, & Broekaert, 2011; Donovan et al., 2005). One such outcome is QoL which captures elements of health and wellness (Donovan et al., 2005), but more comprehensive components of subjective wellbeing are needed to operationalize definitions of recovery. A concept that has burgeoned in recent mental illness research is that of Keyes' model of complete mental health, which encompasses social, emotional, and psychological wellbeing (Keyes, 2007). Mental health is considered to be the presence of emotional wellbeing in conjunction with high levels of social and psychological functioning (Keyes & Westerhof, 2012).

Keyes' model of complete mental health has demonstrated that mental health and mental illness are independent yet correlated dimensions (Provencher & Keyes, 2011). In this

context, mental illness refers to psychopathology such as depression. In contrast the primary measure of mental health used to test the model of complete mental health, has been the MHC which can categorise or "diagnose" individuals as flourishing, languishing or moderately mentally healthy (Keyes, 2002). While not yet a universally accepted diagnosis, the DSM (American Psychiatric Association, 2013) approach to the diagnosis of major depression was utilised as a theoretical and empirical guide to determine a diagnosis of mental health (Keyes, 2002). Where individuals must exhibit five of nine of the symptoms for a diagnosis of major depression, for a flourishing mental health diagnosis individuals must endorse high levels on one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items. For a diagnosis of languishing an individual will endorse low levels on one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items (Keyes, 2002, 2005b). Individuals who do not meet the criteria for flourishing or languishing are considered moderately mentally healthy (Keyes, 2002). Flourishing, languishing and moderate mental health can all occur in the presence or absence of a mental illness (Keyes, 2002).

In relation to substance use, comorbidity of mental illness and addiction in Australian residential SUD clients has been reported at 64%-71% (Mortlock et al., 2011). However, the prevalence of mental health has not been investigated in the context of substance misuse. Given the high prevalence of comorbidity, it has been proposed that addiction research should adopt and integrate constructs and outcomes utilised in the mental health recovery domain (Bowersox et al., 2009; Coombs & Meehan, 2003; Rudolf & Watts, 2002). If Keyes' (2002) conceptualisation of mental health is extended to the drug and alcohol addiction context, then it would be possible for individuals who were abstinent to potentially be flourishing, languishing, or moderately well. In addition to facilitating recovery progress,

identifying mental *health* diagnoses would aid the mobilisation of additional treatment support to enhance recovery.

The interactions of well-functioning in the presence or absence of substance use is not new in the addiction fields. For example, languishing despite being abstinent has historically been captured by the concept of the "dry drunk". The phrase is a lay term, coined early in Alcoholics Anonymous history (AA; Flaherty et al., 1955) and is the notion that a person can be abstinent from substances yet still experience the emotional and functional problems that were encountered during their addiction (Gogek, 1994). It is theorised that there is a subset of individuals who, when discharged from treatment, are unable to attain satisfactory wellbeing, purpose in life, or flourish.

Keyes (2005b) has reported American general population estimates of 16.9% of people who were languishing, 65.1% moderately mentally healthy and 18.0% considered to be flourishing from a mental health perspective. However, there appears to be variability across different populations. A survey study of 1,045 American yoga practitioners found notably different estimates, with 1.0% identified as languishing, 55.2% as moderately mentally healthy and 43.8% as flourishing (Ross, Friedmann, Bevans, & Thomas, 2013). The authors implied that yoga practice and belief in the personal health benefits of yoga might explain the relatively high rates of flourishing. However, definitive conclusions about why there were relatively high rates of flourishing in this sample could not be made from the cross-sectional data (Ross et al., 2013).

Flourishing has been associated with a range of personal and societal health benefits (Keyes, 2005a; Ross et al., 2013). It has been found that individuals identified as flourishing have reduced odds of premature mortality, potentially due to the association of tobacco use and physical inactivity among individuals who are not flourishing (Keyes & Simoes, 2012). When combined with the absence of a mental disorder, individuals who are flourishing have

reported better health, such as the lowest risk of cardiovascular disease and fewest limitations of activities of daily living, and thus unsurprisingly have lower health care utilization and fewest missed days of work (Keyes, 2007). It is theorised that flourishing and moderate mental health are a source of resilience, acting as a buffer against stressful life events (Keyes, 2002), which are known predictors of substance abuse relapse (Laudet, Cleland, Magura, Vogel, & Knight, 2004a). A potential mechanism for this buffer effect was identified by a survey study of community members across America (Catalino & Fredrickson, 2011). They found that relative to individuals who did not flourish or were depressed, individuals who flourished tended to respond with larger spikes in positive emotion following everyday pleasant events. It was argued that this larger positive emotional reactivity ultimately fed back into promoting higher levels of flourishing. Therefore, the concept of flourishing may be a useful construct when considering outcomes following substance abuse treatment.

It is increasingly accepted that there is more to recovery than just abstinence from substances (Laudet & White, 2010; SAMHSA, 2011; Schwarzlose et al., 2007). There is a need to begin exploring the relationships between mental health as proposed by Keyes (2007) and substance use amongst individuals in treatment in order to identify those in need of greater support and more targeted interventions. Given the preliminary nature of this research with the MHC, we have chosen to use both categorical and continuous ratings of mental health in order to provide comparisons with normative data and changes in mental health over time.

Therefore, the primary aim of the present study was to describe rates of mental health and to test the validity of the MHC in the context of substance misuse. It was expected that mental health would have significant relationships with commonly utilised research and clinical measures, providing evidence of convergent and divergent validity. The second aim of the study was to identify variability in the proportions of categorical mental health "diagnoses"

(Keyes, 2002). That is, to demonstrate whether individuals are, for example: abstinent and flourishing; misusing substances and languishing; misusing substances and flourishing; or abstinent and languishing. It is theorised that if recovery is broader than merely 'not drinking' then we should identify some individuals who are languishing despite being abstinent. The third aim of the research is to explore the temporal link between mental health and indices of substance abuse severity and cravings (alcohol use, drug use, and cravings). Three potential models are possible. The *consequence model* suggests that reduced addictive behaviour increases mental health. In short, given an episode of treatment it would be expected that substance abuse severity would decrease and this would lead to improvements in mental health. In contrast, the *antecedent model* assumes that poor mental health is the cause of poor substance use outcomes. There are several possible reasons why an antecedent model might be present. People who have poorer mental health may turn to substances as an unhelpful way of coping. Such a model is consistent with the self-medication hypothesis and findings that some individuals use drugs and alcohol as a way to regulate positive and negative emotions (Cooper et al., 2012; Khantzian & Mack, 1994). In a treatment context it is also possible that poorer mental health makes it more difficult for those receiving drug and alcohol services to obtain improvements for their addictions. Finally, the *reciprocal influence model* suggests that substance use is both an antecedent to and a consequence of mental health problems.

2.2 METHOD

All measures, forms and procedures were approved by the University Human Research Ethics Committee. The data for the current study was collected as part of a wider research initiative that involved evaluating the effectiveness of The Salvation Army Recovery Service Centres from December 2008 to March 2011. The existing component of the research project was aimed at collecting relevant data for The Salvation Army rather than addressing the

research questions proposed in this thesis. Thus, while part of a broader initiative the candidate provided a significant contribution to the current study. In reference to the body of work, the candidate completed literature searches to help delineate and frame the research questions and identify relevant measures to include alongside the clinical measures. Additionally the candidate developed the necessary ethics proposal and compilation of measures for delineation by The Salvation Army staff. For this particular chapter, Breanna McGaffin contributed to 75% of the development of concept, design, data collection and analysis, drafting and revision of the manuscript and chapter. Professor Frank Deane contributed 15% of the development of concept, design, data collection and analysis, drafting and revision of the manuscript and chapter. Associate Professor Peter Kelly contributed to 5% of the development of concept, drafting and revision of the manuscript and chapter. Professor Joseph Ciarrochi contributed to 5% of the data analysis and drafting and revision of the manuscript.

2.2.1 Participants

The Salvation Army Recovery Service Centres provide residential alcohol and other substance abuse treatment in the form of a modified therapeutic community. The treatment program is around 8- to 10-months. Upon entering the program, clients progress through a 6-stage, group-based treatment process. This treatment process involves a combination of skills training, psychoeducation, 12-step–based interventions, and individual counselling. Clients are also provided with vocational training, pastoral counselling, and on-site volunteer work activities, such as gardening or working in the kitchen. Participants were recruited from nine different Recovery Service Centres that were located in the Australian states of New South Wales, Queensland, and the Australian Capital Territory. It is important to note that clients who did not complete the entire treatment program were not excluded from the study.

Anyone who had engaged with the service was considered to have received treatment. However, only participants who provided complete responses at entry to the program on the MHC (Keyes, 2002) and items indicating their prior 30-day substance use status (used or abstained) were included in the current analysis (N = 794). Figure 1 provides a flow-chart of participant movement over the study period. The sample included 631 males (79.5%) and 163 females, who had an average age of 36.09 (*SD* = 10.72). Participant demographic information is reported in Table 1.

Table 1. *Demographic Information*.

Characteristics	*n*	Valid %	*M*	*SD*
Gender				
Male	631	79.5		
Female	163	20.5		
Age			36.09	10.72
Days in treatment			92.22	74.66
Years of substance use problem			18.28	10.77
Self-reported Primary Substance				
Alcohol	463	60.2		
Amphetamines	113	14.7		
Cannabis	101	13.1		
Heroin	63	8.2		
Other	29	3.8		

Religious affiliation		
Christian	277	36.5
No religion	205	27.0
Catholic	155	20.4
Protestant	56	7.4
Other	53	7.0
Buddhist	13	1.7
Marital status		
Single / Never married	529	68.0
Divorced	108	13.9
Separated	84	10.8
Married / Remarried	54	6.9
Widowed	3	0.4
Education		
Primary	13	1.7
Lower secondary (Years 7-9)	231	29.2
Upper secondary (Years 10-12)	463	58.6
Post-secondary	83	10.5

A follow-up rate of 28.8% was obtained at the 3-month follow-up; three participants did not provide complete responses to the mental health or use status items, resulting in a

sample of 226 individuals. Only those participants contacted at the 3-month follow-up who provided renewed consent to participate were re-contacted at 12-month follow-up. We did not contact all the baseline participants for 12-month follow-up as the chances of successfully contacting individuals who had not been contacted at the 3-month follow-up was extremely low. This resulted in 113 (50.9%) participants providing complete responses to mental health and use status items.

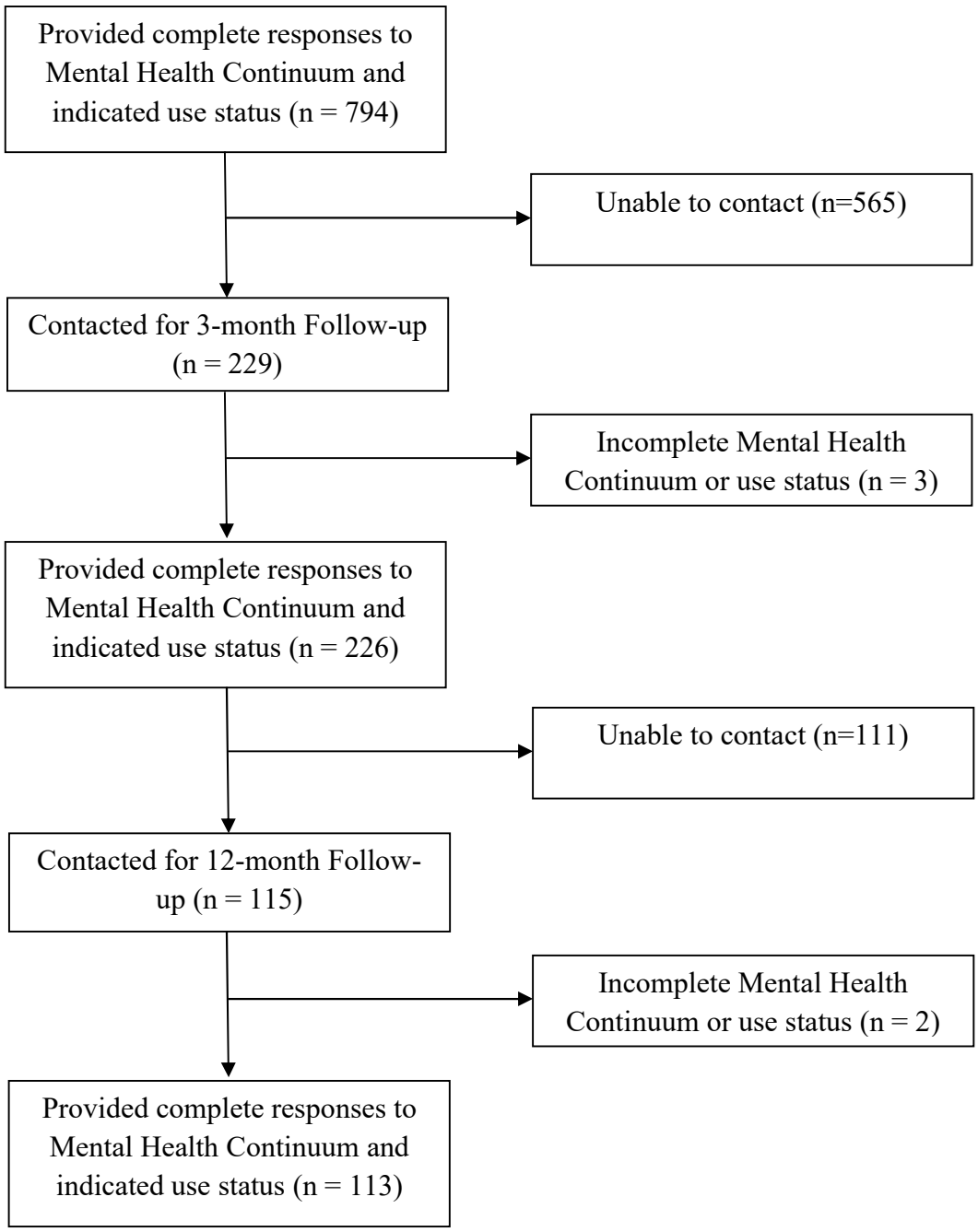

Figure 1. Participant flow over baseline and follow-up assessments.

2.2.2 Measures

2.2.2.1 Mental Health Continuum – Short Form.

The Mental Health Continuum – Short Form (MHC-SF) is a 14 item self-report questionnaire that assesses positive mental health (Keyes, 2002). Participants rate the frequency of each feeling in the past month on a 6 point Likert scale (0 = never to 5 = every

day). It includes, 3 items form the Emotional Wellbeing subscale which assesses positive emotions towards one's life ("Satisfied with life"), 5 items form the Social Wellbeing subscale ("That you had something important to contribute to society") and six items form the Psychological Wellbeing subscale ("That you liked most parts of your personality") which assesses engagement and functioning in one's social and private life. Cronbach's alpha in the current sample was satisfactory (α = .94).

The scale can be scored both continuously and categorically (Keyes, 2009). Continuous scoring is the sum of responses to the 14 items, with higher scores indicating better mental health. Categorical scoring results in what Keyes refers to as "diagnoses" of flourishing, languishing or moderate mental health (Keyes, 2002). To be flourishing, individuals must respond 'every day' or 'almost every day' to at least one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items. To be languishing, individuals will respond 'never' or 'once or twice' to at least one emotional wellbeing item and six social and psychological wellbeing items. Individuals who are neither flourishing nor languishing are diagnosed with moderate mental health. Both scoring methods are utilised in the current research.

2.2.2.2 Addiction Severity Index.

The Addiction Severity Index (ASI) is a semi-structured interview commonly used as a component of comprehensive assessment in substance abuse treatment programs (McLellan, Kushner, Metzger, Peters, & et al., 1992). Several domains are assessed; drug, alcohol, medical, family, psychiatric, employment, and legal. Cronbach alpha's are acceptable for the composites (α = .67 to .85) (Zanis, McLellan, & Corse, 1997). For the purpose of the current research, only the questions pertaining to use of substances in the past 30 days were included in the analyses.

2.2.2.3 Life Engagement Test.

The Life Engagement Test (LET) is a 6-item scale measuring a person's purpose in life in terms of engaging in activities that are personally valued (Scheier et al., 2006). Participants were asked to rate each statement on a scale from 1 (strongly disagree) to 5 (strongly agree). An example item is, "To me, the things I do are worthwhile". Cronbach's alpha for the scale in the current sample was satisfactory ($\alpha = .77$).

2.2.2.4 Depression Anxiety Stress Scale.

The Depression Anxiety Stress Scale (DASS) is a 21 item self-report measure yielding three subscales (Lovibond & Lovibond, 1995). Seven items form each of the subscales; depression ("I felt that life was meaningless"), anxiety ("I was aware of dryness of my mouth"), and stress ("I find it hard to wind down"). Cronbach's alpha for the scale in the current sample is satisfactory ($\alpha = .96$).

2.2.2.5 Desires for Alcohol Questionnaire.

The abbreviated 6 item Desires for Alcohol Questionnaire (DAQ) was used to assess the participants' current desire for alcohol (Mo, Deane, Lyons, & Kelly, 2013). Participants indicated their agreement to the statements on a 7 point Likert scale (1 = strongly disagree to 7 = strongly agree). Items were modified for the study to assess drug *and* alcohol desires. For example, the statement "I want to drink so much I can taste it" was adjusted to "I want to drink/use drugs so much I can taste it". Cronbach's alpha for the scale in the current sample was satisfactory ($\alpha = .93$).

2.2.2.6 Drug Taking Confidence Questionnaire.

The Drug Taking Confidence Questionnaire (DTCQ) is an 8 item scale assessing a person's self-efficacy to resist the urge to drink alcohol or take drugs in specific high relapse risk situations (Sklar & Turner, 1999). Participants were asked to specify their primary drug of choice then rate their confidence of resisting that drug in each situation on a scale of 0 (not at all confident) to 100 (very confident). An example item is "If I were angry at the way things turned out". This measure was only administered at baseline. Cronbach's alpha for the scale in the current sample was satisfactory ($\alpha = .91$).

2.2.3 Procedures

The Salvation Army staff (centre managers and clinical employees) were trained in the administration of the ASI and all outcome measures used in the study by the research team. These measures were integrated into intake protocols and each client was provided a consent form and information relating to the aims, procedures and demands of the research. Those clients wishing to participate completed all measures during this intake session. Intake data was entered by The Salvation Army staff into the online Service and Mission Information System (SAMIS) and downloaded for analysis by the research team.

Three- and 12-month post-discharge follow-ups were conducted. Participants were provided with an AUD$20 gift voucher for completing each follow-up interview (See Deane, Kelly, Crowe, Lyons, & Cridland, 2014 for more details).

2.2.3.1 Data analytic strategy

Visual inspections of the variables' distributions (Tabachnick & Fidell, 2013) showed normality violations. Skewness and kurtosis indexes were used to investigate the normality of

the variables with the results suggesting the deviations were not severe, with the values being below the acceptable limits of 3 and 10 respectively (Kline, 2016).

Pearson's correlations were used to determine the associations between mental health and other routine clinical measures of SUDs. To determine proportional differences in categorical diagnoses (flourishing, languishing, moderate mental health) at each assessment, a one-way repeated measures ANOVA was run. Pairwise comparisons were utilised to identify the assessment points that yielded significantly different diagnoses. To investigate the relationship between substance use status and mental health diagnosis, a Pearson's Chi-square Test of Contingencies was used.

A 2 (Group: abstinent or used) x 3 (Time: baseline, 3-month, 12-month follow-up) mixed-design ANOVA and Autoregressive Cross-lag (ACL) analysis was used to examine changes in mental health across time for substance use status. With respect to the ANOVA, mental health scores obtained at the three time points were entered as a within-subjects factor and substance use at 3-month follow-up (abstinent and use of substances) was entered as a between subjects factor.

ACL models were utilised, as they are a common method to consider temporal ordering of constructs in order to distinguish between alternative causal hypotheses, or directionality of the associations between constructs (i.e., a predicts changes in b; b predicts changes in a; or a and b are reciprocally related (Marshall, Parker, Ciarrochi, & Heaven, 2014). This model's focus is on the relations between one construct at a time point T on change in another construct observed to occur between time point T and T+1.

We used AMOS 21 (Arbuckle, 2012) to estimate a series of structural equation models representing the relations between substance use and mental health across the three time points of the study. We estimated one and two year autocorrelations (Time 1 predicting the

same variable at Time 2 and 3) and one year cross-lags (Time 1 predicting the other Time 2 variable). Adding a two-year cross-lag did not improve fits of any model.

Given that this was a longitudinal study, missing data is a potential concern. It is now well recognized in the social sciences that traditional approaches to missing data (e.g., listwise or pairwise deletion) are inappropriate and can lead to biased parameter estimates. Modern methods like full-information-maximum-likelihood (FIML) provide a principled approach to missing data which uses all the available information for parameter estimation (Enders & Bandalos, 2001; Howell, 2008). This procedure was employed for all models.

2.3 RESULTS

2.3.1 Attrition bias

The low follow-up rates have meant that there is considerable missing data. A more extensive missing data analysis for the follow-up methods used as part of routine outcome assessment revealed no systematic differences between completers and non-completers (Deane, Kelly, Crowe, Lyons, & Cridland, 2014). However, we also checked for potential attrition bias on 18 variables for the current subsample.

Differences between participants who had provided data at all three time points and those who had only completed the baseline assessment were investigated. An independent t-test of baseline variables (for example, religiosity, addiction severity) identified no significant differences, with the exception of the ASI alcohol composite score (t (740) = -2.36, $p < .05$), and age (t (794) = -3.72, $p < .05$). Participants who had not completed all follow-up assessments had lower alcohol severity and were younger (M = 35.53, SD = 10.43) than participants who had completed assessments at all three time points (M = 39.58, SD = 11.80).

The following results are therefore more applicable to those clients with more severe alcohol problems and near our obtained mean age.

The impact of length in residential care was also considered. The analyses were conducted excluding individuals who had been at the treatment facility for less than one month. However, the same pattern of results was obtained. Given the additional data loss this introduced, and no significant difference identified in the independent t-test, time in treatment was not used as an exclusion criterion.

2.3.2 Correlations with clinical measures

Pearson correlations were run due to the normality violations to assess the bivariate associations between the MHC and the four self-report measures at baseline, 3-month follow-up and 12-month follow-up (Table 2). The correlations demonstrate moderate significant relationships in the expected direction. Mental health was negatively correlated with psychological symptom distress and cravings. Mental health was positively correlated with refusal self-confidence and life engagement.

Table 2. *Pearson Correlations among Continuous Mental Health and Clinical Measures.*

			Baseline (n = 668)			
	Mean	Standard Deviation	1	2	3	4
1. Continuous mental health	34.13	16.08				
2. DASS-21	55.75	32.15	-.54**			
3. DAQ	16.42	9.16	-.39**	.50**		
4. LET	20.59	4.39	.58**	-.48**	-.41**	

5. DTCQ	55.07	26.95	.36**	-.31**	-.32**	.32**

			3-Month Follow-up (n = 217)			
	Mean	Standard Deviation	1	2	3	4
1. Continuous mental health	43.59	15.32				
2. DASS-21	33.89	26.90	-.62**			
3. DAQ	15.75	10.36	-.50**	.53**		
4. LET	20.99	4.44	.69**	-.47**	-.52**	

			12-Month Follow-Up (n = 66)			
	Mean	Standard Deviation	1	2	3	4
1. Continuous mental health	42.11	15.99				
2. DASS-21	32.93	28.73	-.63**			
3. DAQ	15.21	10.59	-.59**	.52**		
4. LET	21.82	4.16	.76**	-.49**	-.57**	

** p <.01.

Note: The DTCQ was not administered at the 3-month and 12-month follow-up assessments. DASS-21, Depression Anxiety Stress Scale-21; DAQ, Desires for Alcohol Questionnaire; LET, Life Engagement Test; DTCQ, Drug Taking Confidence Questionnaire.

2.3.3 Categorical mental health prevalence

Table 3 presents the frequencies of mental health as diagnosed categorically. All three diagnoses are present in the sample. Most participants were moderately mentally healthy at

all three assessments (54.3%, 50.0%, and 47.8% respectively). At baseline around as many participants were flourishing (21.9%) as were languishing (23.8%). However, at 3- and 12-month follow-ups flourishing increased, whereas languishing decreased, when compared to baseline.

Table 3. *Proportion of Mental Health Categories at Baseline, 3- and 12-Month Follow-up.*

	Baseline		3 Month Follow-Up		12 Month Follow-Up	
	n	Valid %	*n*	Valid %	*n*	Valid %
Languishing	189	23.8	21	9.3	14	12.4
Moderately Mentally Healthy	431	54.3	113	50.0	54	47.8
Flourishing	174	21.9	92	40.7	45	39.8

2.3.4 Comparisons over time

A one-way repeated measures ANOVA was used for participants who had completed the baseline, 3-month, and 12-month assessments to investigate differences in diagnoses over time. The results indicated that there was a statistical difference in the categorical MHC scores at each assessment, $F(2, 222) = 14.47$, $p < .001$. Follow-up pairwise comparisons with a Bonferroni adjusted α of .017 indicated that there were significant differences between baseline ($M = .96$, $SD = .69$) and 3-month follow-up ($M = 1.31$, $SD = .63$), $p < .001$, and baseline and 12-month follow-up ($M = 1.29$, $SD = .67$), $p < .001$. There was no significant difference between the 3- and 12-month follow-up mental health diagnoses ($p = .38$).

To investigate whether substance use is related to a diagnosis of mental health Pearson's Chi-square tests were conducted (see Table 4). The chi square tests comparing

mental health category and substance use status were significant at baseline, χ^2 (2, N = 794) = 18.02, p <.001, 3-month follow-up, χ^2 (2, N = 225) = 15.23, p <.001, and 12-month follow-up, χ^2 (2, N = 113) = 18.20, p <.001. At all three time points the proportion of participants who were languishing was significantly higher in the group who were still using substances (26.3%, 14.4%, 15.3%) compared to those who were abstinent (14.9%, 4.4%, and 7.3%). Similarly, the proportion of those who were flourishing was significantly higher for those who were abstinent (32.0%, 51.8%, 65.9%) compared to those who were still using (19.1%, 28.8%, and 25.0%).

Table 4. *Mental Health Categories Delineated by Abstinence or Use of Substances at Baseline, 3- and 12-Month Follow-up.*

	Abstinent		Used	
	n	%	*n*	%
Baseline (n = 794)				
Languishing	26	14.9	163	26.3
Moderately Mentally Healthy	93	53.1	338	54.6
Flourishing	56	32.0	118	19.1
3-Month Follow-Up (n = 225)				
Languishing	5	4.4	16	14.4
Moderately Mentally Healthy	50	43.8	63	56.8
Flourishing	59	51.8	32	28.8
12-Month Follow-Up (n = 113)				
Languishing	3	7.3	11	15.3
Moderately Mentally Healthy	11	26.8	43	59.7
Flourishing	27	65.9	18	25.0

Note: 'Used' indicates the use of any substances in the previous 30 days.

2.3.5 Continuous mental health

To investigate continuous mental health, mixed-design ANOVA and ACL analyses were utilised. For the mixed-design ANOVA, reported substance use status (abstinent or using) at 3-month follow-up was used as the grouping variable (see Table 5). The results revealed a significant interaction between mental health and substance use status, $F(2, 218) = 4.92$, $p<.01$, partial $\eta^2 = .04$. Figure 2 shows that participants started with a similar level of mental health. However, while mental health increases over time for both groups, abstinent individuals experience larger increases in mental health than those who use substances. There was an overall within-subjects effect of mental health across time, $F(2, 218) = 24.09$, $p <.01$, with significant differences between baseline and 3-month follow-up ($p <.001$) and baseline and 12-month follow-up ($p <.001$), but not between the 3- and 12-month follow-ups ($p >.05$). This indicates that improvements in mental health occur early in the recovery phase and as indicated in Figure 2, continue to improve for individuals who abstain and decrease slightly for individuals who use substances.

Table 5. *Continuous Mental Health Means (M), Standard Deviations (SD) and Between-Group t-tests.*

	Abstinent		Used Substances			
	M	*SD*	*M*	*SD*	*t value*	*p*
Baseline	34.44[a]	15.29	32.02[a]	15.06	.84	>.05
3-Month Follow-Up	47.48[b]	14.72	37.81[c]	14.51	3.49	<.001
12-Month Follow-Up	48.44[b]	12.92	36.72[c]	16.04	4.25	<.001

n=111.

Note: Subscripts that differ between columns and rows indicate significant differences; t value statistics reflect between group analyses; Substance use status is based on responses provided at 3-month follow-up; 'Used' indicates the use of any substances in the previous 30 days.

Additionally, a significant main effect of substance use status was found, $F(1, 109) = 13.60$, $p < .001$. Congruent with Figure 2, simple effects indicated that mental health was not significantly different between abstainers and users at baseline ($p = .404$). However, mental health was rated significantly higher by abstinent individuals than those who had used substances at 3-month ($p < .01$), and 12-month follow-up ($p < .001$).

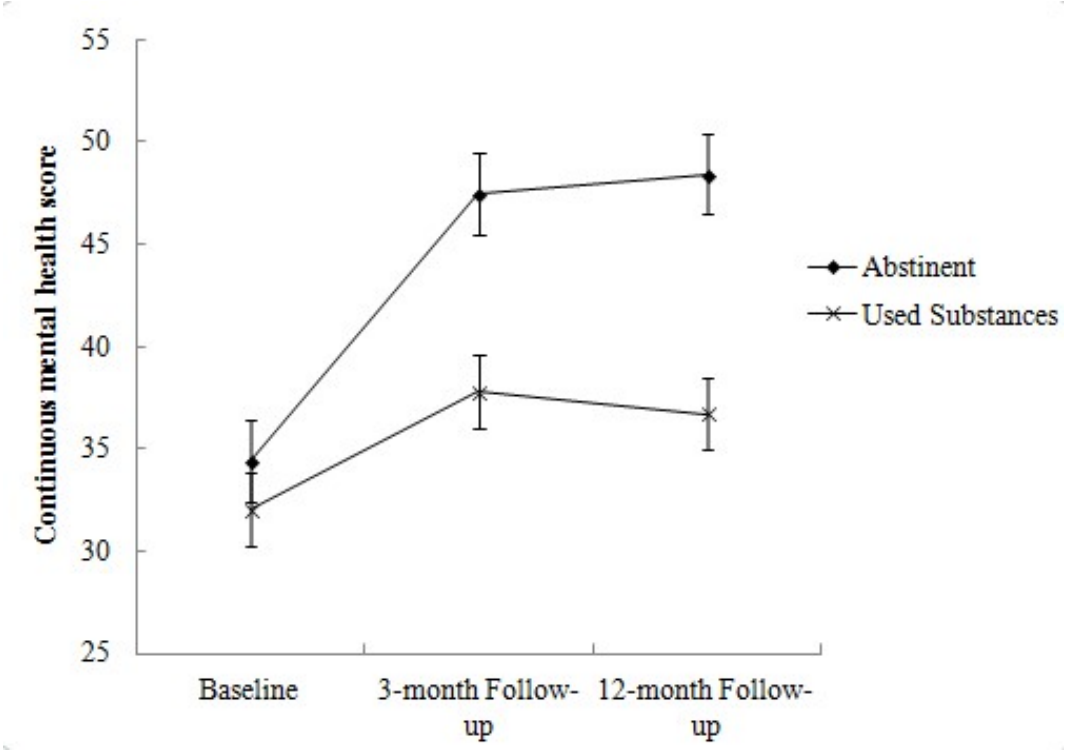

Figure 2. Changes in continuous mental health scores between assessment periods as a function of substance use status (n = 111).

Next, ACL models were applied; specifically, the antecedent, consequence, and reciprocal influence models. The ASI-Alcohol Severity, ASI-Drug Use Severity and DAQ

(cravings) measures were used as indicators of addiction problems. These three addiction measures were each used with the MHC (continuous variable) in three ACL analyses.

All models showed excellent fit, with Chi-square (2) < 5.5, $p > .05$, Comparative fit index > .97, and Root Mean Square Error of Approximation <.05. Figure 3 presents the results. The variables tended to be moderately stable across time. There were no significant cross-lags going from mental health to substance use, providing no support for the mental-health as antecedent model. There were, however, significant cross-lags going from Time 2 measurement of substance use and cravings, and Time 3 mental health. These results support the mental health as consequence model. Time 2 and Time 3 measures represent residual change in this ACL model. Thus, if participants improved on the substance use variables from Time 1 to Time 2, they were more likely than those who did not improve to experience an increase in mental health from Time 2 to Time 3.

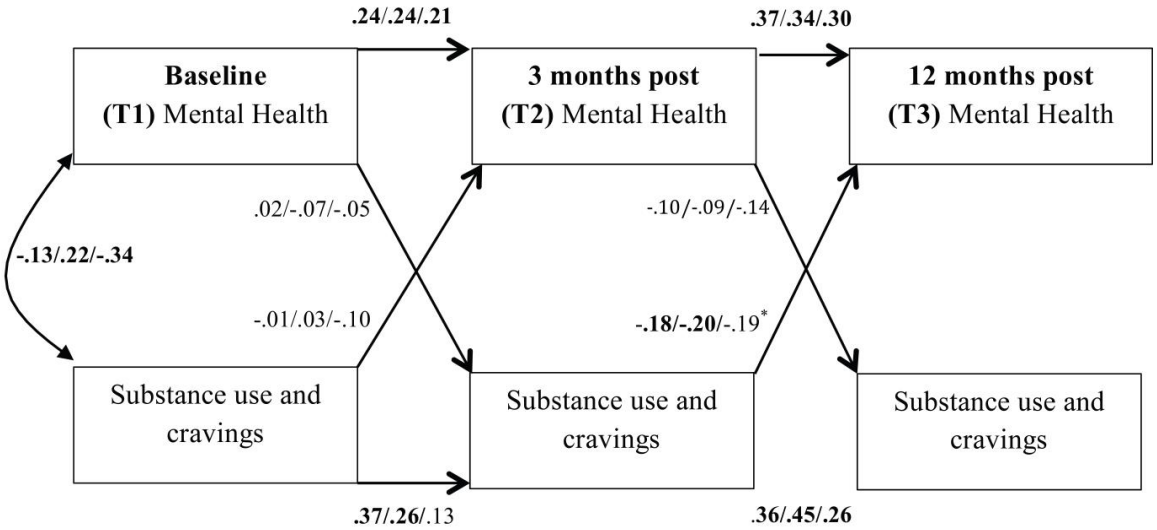

Figure 3. Longitudinal relationships of mental health with alcohol and substance use, and cravings.

Note. The three standardized coefficients represent the relationships for substances, alcohol use, and cravings, respectively. Two-year auto correlations were estimated but are not presented in the figure. Bolded coefficients are significant at $p < .05$, $^{*}p = .055$.

2.4 DISCUSSION

This study examined whether Keyes' model of mental health had utility in the context of drug and alcohol misuse. Proportions of mental health diagnoses identified that flourishing, languishing and moderate mental health diagnoses were present in the current sample. Compared to American population estimates (16.9%; Keyes, 2005b), the current sample had higher levels of languishing at baseline (23.8%) as might be expected. It was notable that following treatment at 3-month follow-up in the community, the frequency of those considered to be languishing was lower than in general population samples (Keyes, 2005b). The rates of flourishing at baseline were similar between population and recovery samples (18% and 21.9% respectively), however by the 12-month follow-up, the rates of flourishing were higher (39.8%) and more comparable to those found among yoga

practitioners (43.8%; Ross et al., 2013). There was a significant difference in mental health proportions between baseline and follow-up assessments, but not between the two follow-up assessment points.

There were associations between categorical mental health status and the use of substances. It was found that at post-treatment follow-ups, abstinence from substances was more commonly associated with flourishing mental health. Conversely, given that we cannot assume causality it may be that individuals with flourishing mental health may be more likely to maintain abstinence. The directional aspects of these relationships are discussed further when we review the results of the Autoregressive Cross-lag (ACL) analyses using continuous variables.

There was a significant interaction between substance use status (abstinent/used) and mental health over time. Those who were abstinent (based on the 3 month follow-up period) experienced significantly better mental health during the follow-up periods compared to those who continued to use. Participants who used substances achieved mean continuous mental health scores that were only either equal to, or marginally above, the mean baseline score of abstinent individuals. As a result of attrition and missing data, these findings are particularly relevant for those with more severe levels of alcohol misuse at treatment entry and may not generalise to those with less severe alcohol problems.

Finally, the model testing indicated that the data were most consistent with the mental health as a consequence model. That is, improved mental health appears to be a consequence of reduced severity of alcohol and other drug abuse. Similarly, better mental health follows reductions in cravings. The measures were administered at three time points; at entry to residential treatment; at 3-month follow-up after discharge and then 12 months post-discharge follow-up. Reductions in drug and alcohol severity and cravings appeared to precede improvements in mental health over these time periods. This result is consistent with

the supposition that the receipt of treatment and the consolidation of treatment effects in the community lead to improved drug and alcohol outcomes, although without a control group we cannot conclude causation. However, the results do suggest that it is not just drug and alcohol specific outcomes, but also more general mental health that improves.

2.4.1 Study implications

Finding relatively low rates of languishing at follow-up compared to population rates, was somewhat surprising but may be partially explained by a contrast effect. That is, individuals who have experienced the challenges and hardships associated with SUDs, which then have positive personal and emotional experiences through treatment, could respond disproportionately to such positive experiences. The contrast between their baseline levels of well-being and subsequent perceptions may lead more individuals to move out of the languishing range. This contrast effect would likely be further enhanced by the positive emotional reactivity found among individuals who are flourishing (Catalino & Fredrickson, 2011). In addition, the relatively lower rates of languishing were found after participants had prioritised their well-being by receiving treatment. This could be an artefact of attrition, where individuals who were experiencing flourishing mental health were eager to participate while individuals experiencing languishing mental health had lower motivation to participate (Del Boca & Noll, 2000). Similarly, the low rates of languishing amongst yoga practitioners was also attributed to the high priority they gave health and wellbeing (Ross et al., 2013). Further research which increases follow-up rates would help to identify whether the current results are biased by the self-inclusion of flourishers. However, the current frequencies and comparison may also be influenced by differences in rates of mental health between the US and Australian samples. This highlights the need to assess Australian community population rates of mental health as conceptualised by Keyes. Finally, some caution is needed in making

comparisons between studies using either the short- or long-form of the MHC. The American population estimates of the mental health categories were generated from the long-form of the MHC, while the current and other studies, including the yoga practitioner study, have utilised the short-form. Although both forms of the MHC have demonstrated adequate validity and reliability (Keyes, 1998; Keyes, 2002; Ryff & Keyes, 1995), it is unclear whether they might result in variations of estimates.

The pre and post treatment differences in mental health diagnoses indicates that individuals may experience significant changes from treatment entry to post-discharge follow-up, but that these changes stabilise over the 12-months post-discharge. This pattern has been identified in previous research with stabilisation being a common goal in the early stages (less than 12-months) of recovery (Dennis, Scott, Funk, & Foss, 2005; El-Guebaly, 2012; McLellan, Lewis, O'Brien, & Kleber, 2000).

The majority of the sample experienced moderate mental health. While not mentally unhealthy, these individuals are not experiencing the benefits of flourishing (Keyes, 2005b). The mental health of these individuals might be further increased, through enhancing or maintaining support resources. Such resources are broadly known as recovery capital (Cloud & Granfield, 2008). Recovery capital includes variables such as spirituality, religion, life meaning, and 12-step affiliation (Laudet et al., 2006) which are thought to reflect an individual's embeddedness in their social and cultural life (Granfield & Cloud, 2001; Laudet et al., 2006). Enhancing components of recovery capital may buffer the effects of stress (Laudet et al., 2006; Laudet & White, 2008) and lead to improved mental health. Future research is needed to confirm such relationships.

Languishing was found to be most common amongst individuals who had used substances. However, there were individual's at all three assessments that had remained abstinent and yet were languishing. This is the group that historically may have been referred

to as “dry drunks” (Gogek, 1994). While abstinence has previously been utilised as a defintion of recovery (Garbutt et al., 1999; Laudet & White, 2010; Rudolf & Watts, 2002), the current, and previous research highlights the limitations of using abstinence as an isolated outcome (Schwarzlose et al., 2007). The inclusion of mental health indices is likely to more comprehensively capture the experience of individuals in recovery (Laudet, 2007).

Finally, evidence for the consequential model suggests that by improving drug and alcohol outcomes other mental health indicators also improve. The study is not able to clarify the mechanisms by which this occurs, but the provision of treatment over the study period suggests this as a potential if not likely mechanism. The Salvation Army residential treatment program is faith-based and subscribes to a 12-step treatment model in what is described as a modified therapeutic community. However, there are multiple other components such as individual counselling, family support and work opportunities provided (e.g., gardening, food services). There is a need for future research to try to provide evidence for the most helpful ingredients in treatment that maximise both substance use and mental health outcomes.

2.4.2 Limitations and future directions

Limitations of the study include reduced sample sizes for follow-up periods, use of only faith-based treatment programs, and the primarily male sample (79.9%). Despite attrition analyses suggesting only alcohol addiction severity may be different for those who completed all follow-ups and those who did not, it is still possible there were other unexplored variables that could potentially bias the findings. Although the ASI is a widely used measure of substance use (McLellan et al., 1992), it is a self-report measure. Future research may benefit from including objective measures of substance use.

There are many reasons for failing to retain participants at follow-up with the more common being: re-entry into recovery services; not providing consent to be contacted at

follow-up; incorrect contact details; and withdrawing consent at follow-up contact. Future research would benefit from utilising balanced gender and a combination of secular and non-secular treatment comparison groups. In addition, the majority of previous literature has arisen from North America (Dennis et al., 2005), whereas the current study utilises an Australian sample. While this broadens research on mental health in addictions contexts, it would be useful to obtain Australian community normative data on the MHC to provide an additional point of reference to quantify rates of mental health recovery.

Despite these limitations, this study offers a unique insight into how mental health relates to recovery from substance misuse. While the comorbidity of mental illness and substance misuse has previously been investigated, this is one of the first studies to document the prevalence of mental health diagnoses.

2.4.3 What aspects of recovery capital contribute to mental health?

The current results provided preliminary support for an antecedent model, where reductions in substance use severity lead to improvements in mental health. While treatment addresses substance use, it is optimal mental health and the potential capacity it provides individuals to accumulate resources to sustain their ongoing recovery and coping which is increasingly of interest (Fredrickson, 2004). These resources are conceptualised as components of recovery capital, defined as the internal and external resources a person can utilise to initiate and maintain their recovery (Granfield & Cloud, 1999). The theorised relationship between mental health and recovery capital would suggest that the gains in mental health made during treatment would lead to the accumulation of resources (e.g. purpose in life, stable housing) to sustain recovery post-discharge, leading to increased positive experiences and further improvements in mental health. While some individuals have flourishing mental health at entry to treatment, the majority of individuals throughout the

study were experiencing moderate mental health. In order to better understand what might enhance mental health further, there is a need to explore different aspects of recovery capital. One broad component is social capital, which has been posited as the critical determinant for increasing personal strengths and tapping into the other capital resources and supports (Best & Laudet, 2010). Social capital encapsulates social network support and community engagement (Putnam, 2000). These social capital variables have been investigated in mental illness and SUDs contexts (e.g. Bathish et al., 2017; De Silva et al., 2005; Dobkin, Civita, Paraherakis, & Gill, 2002; Longabaugh, Wirtz, Zywiak, & O'Malley, 2010; Tracy et al., 2016) but there is limited research exploring their relationship with complete mental health (Fink, 2014).

The various forms of social capital benefit mental illness, QoL and substance use in differing ways. The structure (e.g. number of people in a network) and quality (e.g. perceived support) of social networks have been reported to influence substance misuse recovery and QoL. For example, fewer substance users in the network contributes to decreased use whereas greater users in a network increases risk of substance use or relapse (Best et al., 2012; Best et al., 2014; Bond, Kaskutas, & Weisner, 2003; Laudet et al., 2004a; McDonald, Griffin, Kolodziej, Fitzmaurice, & Weiss, 2011; Min et al., 2013). It is purported that the trust, tangible aid, emotional support, advice and information that engagement and connection with one's social network accrues is what influences gains in QoL and reduced substance use (Best, McKitterick, Beswick, & Savic, 2015b; Cohen et al., 2000; Groshkova, Best, & White, 2011). Community engagement in the form of participation in meaningful activities (e.g. work, religious/spiritual groups) has been found to influence personal wellbeing (Landstedt, Almquist, Eriksson, & Hammarström, 2016). Membership in recovery oriented groups was found to provide individuals in recovery with meaningful activity which was associated with greater QoL (Best et al., 2012; Best et al., 2015b; Groshkova et al.,

2011). Community engagement may foster positive outcomes by cultivating a psychological sense of community (McMillan & Chavis, 1986). This sense of community is theorised to encapsulate four dimensions: needs fulfilment (perception that one's needs will be met by their community), group membership (sense of belonging or relatedness), influence (a sense that one matters and can make a difference in a community, and that the community matters), emotional connection (attachment and bonding from shared history or experience) (McMillan & Chavis, 1986; Peterson, Speer, & McMillan, 2008). In addition to understanding how social capital can lead to improvements, relational directions are also being investigated. That is, whether social and community engagement is related to changes in wellbeing and substance use, whether wellbeing and substance use are related to changes in social and community engagement or whether the relationship is bidirectional (Landstedt et al., 2016). It is possible that one or more of these mechanisms or directions may be important for individuals in the context of substance misuse, the current research is interested in whether these associations are present with complete mental health. The following cross-sectional study aims to describe the pattern and frequency of community participation for different mental health categories. That is, whether individuals have different frequencies of community engagement depending on their experience of flourishing, languishing or moderate mental health. Additionally the research aimed to concurrently explore the extent that substance use severity, social support and community participation predict mental health.

CHAPTER THREE

STUDY 2: COMMUNITY PARTICIPATION AND MENTAL HEALTH PRIOR TO TREATMENT

This chapter has been accepted as a paper in the journal *Advances in Dual Diagnosis* (see Appendix G for accepted version).

Modifications were made to this published paper to conform to the thesis review process.

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3.1 INTRODUCTION

Individuals in recovery from SUDs can experience improvements in wider areas of functioning (e.g. engagement in social and civic life) without necessarily abstaining from alcohol or other substances (Best & Laudet, 2010; Laudet, 2008; White, 2007). However, recovery from SUDs has historically been measured with abstinence as the primary criteria (Garbutt et al., 1999; Laudet & White, 2010). In order to broaden what constitutes recovery, QoL was an initial wellbeing outcome investigated in a SUD context (Best et al., 2012; Donovan et al., 2005). Keyes' model of complete mental health has recently been introduced as a more comprehensive subjective wellbeing outcome (Keyes, 2007). Complete mental health is considered to be the presence of emotional wellbeing in conjunction with high levels of social and psychological functioning (Keyes & Westerhof, 2012). The measure of complete mental health is able to "diagnose" individuals (Provencher & Keyes, 2011) according to three categories of mental health; flourishing, moderately mentally healthy or languishing (Keyes, 2002). To be flourishing in life, individuals must exhibit high levels of emotional wellbeing and positive functioning; in contrast a person who is languishing will exhibit low levels (Keyes, 2002). Individuals who do not meet the criteria for flourishing or languishing are considered moderately mentally healthy (Keyes, 2002). It has been found that all three categories can occur in the presence or absence of mental illness (Keyes, 2002). When investigated in participants who had attended residential drug and alcohol treatment, individuals were represented in all three "diagnoses" whether they were using or abstaining from substances (McGaffin, Deane, Kelly, & Ciarrochi, 2015). Such findings have reinforced prior evidence that recovery encompasses more than just abstinence from substances (Laudet & White, 2010; White, 2007). There is now a need to determine what factors contribute to flourishing or protect against languishing (Robitschek & Keyes, 2009). One resource likely to

enhance mental health is the extent to which people are engaging in their communities (Berry, Rodgers, & Dear, 2007; Ding et al., 2015).

Participation in social and civic life are components of social capital. Social capital is a multidisciplinary and multifaceted concept that has often been misused (Berry & Rickwood, 2000; Farr, 2004; Putnam, 2000) but a commonly utilised definition in the health sciences views it as the combination of patterns of community participation and the social cohesion created from the participation (Putnam, 2000). These elements of social capital are considered to be internal and external resources available to individuals (Granfield & Cloud, 1999) along a continuum from positive to negative (Cloud & Granfield, 2008). Positive recovery entails utilising such resources in the initiation and maintenance of recovery (Cloud & Granfield, 2008). Negative capital may be, for example, personal circumstances or behaviours which may maintain substance misuse, impeding the ability to successfully terminate substance misuse (Cloud & Granfield, 2008). Providing specific examples of positive and negative recovery capital can be somewhat difficult. For example, age can potentially be positive or negative for an individual. Older adults may have had opportunities to develop interests and experiences outside of substance use (positive), conversely they may have had extended involvement with substance use subculture and have poor physical health (negative; Cloud & Granfield, 2008).

The community participation component of social capital is considered "what people do" to engage in society (Harpham et al., 2002). Participation has been organised into three broad categories of activity: informal social connectedness (e.g. contact with friends), civic engagement (e.g. volunteering), and political participation (e.g. political protest; Berry et al., 2007; Berry & Welsh, 2010; Putnam, 2000). Worldwide, levels of community participation have been found to have a positive relationship with mental health (Phelan et al., 2000; Skrabski et al., 2003; Ziersch, 2005). In an Australian community sample, higher levels of

community participation were related to better mental, physical and general health (Berry & Welsh, 2010). To investigate the longitudinal causal relationship, two analyses of community participation and mental health were conducted in an Australian community sample (Ding et al., 2015). Firstly, the three community participation categories were used to predict mental health one year later. The results indicated the strongest predictor of mental health was informal social connectedness. Political participation was the weakest predictor and had an inverse relationship with mental health. Individuals with poor mental health derived less benefit from informal social connectedness and civic engagement, than individuals with greater levels of baseline mental health (Ding et al., 2015). Secondly, mental health was used to predict the three types of community participation the following year. The results were consistent with the first analyses, with mental health most strongly predicting informal social connectedness. Based on their findings, it was proposed that strengthening community participation would be a suitable wellbeing intervention, particularly for individuals with compromised mental health (Ding et al., 2015).

The majority of research focussing on the community participation aspect of social capital has focussed on the mental health of people living in the general community (e.g. Ding et al., 2015), but there is a small body of research examining it in individuals living with mental illness (Repper & Perkins, 2003). People with high levels of community participation have reduced experiences of mental illness (De Silva et al., 2005). Despite high comorbidity between substance misuse and mental illness (Mortlock et al., 2011), there is limited research on community participation in samples with SUDs. Consistent with the broadening definition of recovery (Best et al., 2012; Donovan et al., 2005; Witbrodt, Kaskutas, & Grella, 2015) the previous research indicating community participation impacts mental illness and health suggests it may be a fruitful variable to better understand in the context of substance misuse (Piedmont, 2004; Redman, 2012).

Social capital is also comprised of social support. SUD research has particularly focused on social support involving friends (Groh, Jason, & Keys, 2008; Humphreys & Noke, 1997). Recovery has been found to be more successful when individuals have an increase in abstaining friends in their social network (Litt, Kadden, Kabela-Cormier, & Petry, 2007; Litt, Kadden, Kabela-Cormier, & Petry, 2009; Longabaugh et al., 2010; Trocchio et al., 2013), and when those friends provide support for abstinence (Beattie & Longabaugh, 1997; Bond et al., 2003; Dobkin et al., 2002; Tracy et al., 2016; Zywiak et al., 2009). Potential mechanisms for these relationships may involve less pressure from supportive friends to drink or use drugs and greater confidence in users to refuse substances. The impact of social support on alcohol and other drug outcomes has been previously investigated, but its impact on mental health in SUD samples remains relatively underexplored.

The current research seeks to describe the patterns and frequency of community participation amongst individuals prior to accessing treatment for alcohol and other substance addictions. Given findings suggesting lower social network ties are found amongst those with substance misuse problems (e.g. Mowbray, Quinn, & Cranford, 2014) it was hypothesised that there would be lower levels of community participation in a sample of individuals entering treatment for substance misuse, compared to the levels identified in a general community sample (Berry & Welsh, 2010). However, to further investigate the patterns of community participation for individuals prior to entering substance misuse treatment the categorical scoring of the MHC-SF was utilised (detail in methods). It was hypothesised that individuals who describe flourishing mental health would report higher levels of community participation than those who were languishing or experiencing moderate mental health. While previous research has utilised social support and more traditional drug and alcohol outcome measures (cravings, drug refusal self-efficacy) in isolation, the current research aimed to concurrently explore their relationship with community engagement and mental health.

Utilising the continuous scoring of the MHC-SF (summing of responses), the current research also aimed to determine which of these variables (gender cravings, drug refusal self-efficacy, friends general social support, informal social connectedness, civic engagement) would explain the most variance when predicting mental health. It was hypothesised social support and community participation would be the strongest predictors of mental health.

3.2 METHODS

All measures, forms and procedures were approved by the University Human Research Ethics Committee (HE12/428). The data for the current study was collected as part of a wider clinical initiative aimed at determining client outcomes. However, the candidate provided a significant contribution to the work. Breanna McGaffin contributed to 80% of the development of concept, design, data collection and analysis, drafting and revision of the manuscript and chapter. Professor Frank Deane contributed 10 % and Associate Professor Peter Kelly contributed 10% to the development of concept, design, data collection and analysis, drafting and revision of the manuscripts and chapter.

3.2.1 Participants

Participants were 1815 individuals who entered treatment between August 2013 and February 2016 at one of seven of The Salvation Army Recovery Service Centres located in the Australian states of New South Wales, Queensland and the Australian Capital Territory. These centres provide a 10 month residential alcohol and other substance misuse treatment in the form of a modified therapeutic community. This program involves skills training, psycho-education, 12-step based interventions, and individual case management and counselling. Further information regarding the program can be found elsewhere (Deane et al., 2014, Maffina et al., 2013). Funding for the program is based on 30% government funding, 30% Salvation Army funding, 30% client contribution (often welfare benefits), and 10% other

donations made to The Salvation Army. Individuals can either be referred to the program, or self-refer. Participants were eligible for the study if they: a) provided consent, b) were enrolled within August 2013 and February 2016 and; c) completed an intake assessment. Approximately 3580 individuals entered treatment over the study period, with 1815 (50.70%) meeting the study criteria. There are a few reasons we were unable to capture the remaining 1765 individuals admitted over the study period. Firstly, data collection did not begin at all services simultaneously so some services may not have begun completing and forwarding baseline assessments until December 2013. Additionally there were some administrative errors where baseline assessments were not forwarded for data entry. Secondly, some individuals refused to participate in the study. Lastly individuals who already participated in the study may have been readmitted to the service, while they are counted as another admission they only provide one baseline assessment.

Community participation population norms were taken from Berry and Welsh (2010). These norms were based on responses from 11,709 individuals (5462 males, 6247 females) who completed the Wave 6 self-report questionnaire of the Household, Income and Labour Dynamics in Australia (HILDA) Survey (Wooden, Freidin, & Watson, 2002). Potential participant households were identified through census data. Individuals who wished to participate completed interviews and were left with the self-report questionnaire for later pickup by the data collection team. Data collection for the HILDA study began in 2001 and has continued annually. For more information on the HILDA study readers are directed to Wooden et al (2002), and for participant demographics see Berry and Welsh (2010).

3.2.1.1 Demographics.

The sample included 1270 males, and 545 females, who had an average age of 36.75 years (SD = 10.46, range: 18-74). Participants' demographic information is reported in Table 1.

Table 6. *Demographic Information*.

Characteristics	*n*	Valid %	*M*	*SD*
Gender				
Male	1270	70.0		
Female	545	30.0		
Age			36.75	10.46
Employment status past 30 days				
Not in paid work	818	88.6		
In paid work	105	11.4	15.74	10.00
Government income support past 30 days				
Income support	611	63.5		
No income support	351	36.5		
Education				
Primary	10	01.5		
Lower secondary (Years 7-9)	219	23.0		
Upper secondary (Years 10-12)	600	63.0		

Post-secondary	125	12.5		
Days in treatment			3.04	7.38
Self-reported Primary Substance				
Alcohol	655	40.1		
Methamphetamines	438	26.8		
Polysubstance	269	16.5		
Cannabis	166	10.2		
Heroin and other opiates	86	5.3		
Other	18	1.1		

N = 1815

Note: Participants sometimes indicated multiple drugs and alcohol as their primary drug of choice, these responses were grouped together to form a polysubstance category.

3.2.2 Measures

3.2.2.1 Australian Community Participation Questionnaire.

Community participation was measured with a 7 item measure derived from the 12 item Australian Community Participation Questionnaire-Short Form (ACPQ; Ding et al., 2015). Three superordinate domains of participation are captured with the ACPQ (Berry et al., 2007). Informal social connectedness involves contact with family, friends, neighbours and workmates ("Make time to keep in touch with friends"). Civic engagement involves organised aspects of community life which can be community, church or work based ("Make time to attend services at a place of worship or a religious organisation"). As political participation has demonstrated the weakest relationship with mental health (Ding et al.,

2015), only the informal social connectedness and civic participation subscales were utilised. Cronbach's alpha for the informal social connectedness (α = .76) and civic engagement (α = .71) subscales, as well as the full scale, in the current sample was satisfactory (α = .81).

3.2.2.2 Mental Health Continuum – Short Form.

The Mental Health Continuum – Short Form (MHC-SF) is a 14 item self-report questionnaire that assesses positive mental health (Keyes, 2002). Participants rate the frequency of each feeling in the past month on a 6 point Likert scale (0 = never to 5 = every day). Three items form the Emotional Wellbeing subscale which assesses positive emotions towards one's life ("Satisfied with life"), 5 items form the Social Wellbeing subscale ("That you had something important to contribute to society") and six items form the Psychological Wellbeing subscale ("That you liked most parts of your personality") which assesses engagement and functioning in one's social and private life. Only the full scale score was utilised. Cronbach's alpha in the current sample was satisfactory (α = .93).

The scale can be scored both continuously and categorically (Keyes, 2009). Continuous scoring is the sum of responses to the 14 items, with higher scores indicating better mental health. Categorical scoring results in what Keyes refers to as "diagnoses" of flourishing, languishing or moderate mental health (Keyes, 2002). To be flourishing, individuals must respond 'every day' or 'almost every day' to at least one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items. To be languishing, individuals will respond 'never' or 'once or twice' to at least one emotional wellbeing item and six social and psychological wellbeing items. Individuals who are neither flourishing nor languishing are diagnosed with moderate mental health. Both scoring methods are utilised in the current research.

3.2.2.3 Friends' Support for Abstinence.

Specific recovery support was measured with an adaptation (Humphreys & Noke, 1997) of the Social Network Social Influence Scale (Collins, Emont, & Zywiak, 1990). The measure was adapted by using only 4 of the items to create a short form. Participants responded on a 5 point Likert scale (0 = never to 4 = often) to assess the support friends provide when trying to cease using substances ("My friends continue to help me even when I haven't been able to quit"). Cronbach's alpha in the current sample was satisfactory (α = .78).

3.2.2.4 Multidimensional Scale of Perceived Social Support.

General social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, 1988). The MSPSS is a 12 item scale of which the 4 items pertaining to support from friends was utilised (e.g. "My friends really try to help me"). Participants were asked to rate their agreement on a 7 point Likert scale (1 = very strongly disagree to 7 = very strongly agree). Cronbach's alpha for the scale in the current sample was satisfactory (α = .93).

3.2.2.5 Desires for Alcohol Questionnaire.

The abbreviated 6 item Desires for Alcohol Questionnaire (DAQ) was used to assess the participant's *current* desire for alcohol (Mo et al., 2013). A measure of cravings was utilised as it is a central element of substance dependence and relapse (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004). Participants indicated their agreement to the statements on a 7 point Likert scale (1 = strongly disagree to 7 = strongly agree). Items were modified for the study to assess drug *and* alcohol desires. For example, the statement "I want to drink so much I can taste it" was adjusted to "I want to drink/use drugs so much I can taste it". Cronbach's alpha for the scale in the current sample was satisfactory (α = .89).

3.2.2.6 Drug Taking Confidence Questionnaire.

The Drug Taking Confidence Questionnaire (DTCQ) is an 8 item scale assessing a person's self-efficacy to resist the urge to drink alcohol or take drugs in specific high relapse risk situations (Sklar & Turner, 1999). This measure was utilised to help assess levels of confidence in users to refuse substances since entering rehabilitation . Participants were asked to specify their primary drug of choice then rate their confidence of resisting that drug in each situation on a scale of 0 (not at all confident) to 100 (very confident) ("If I were angry at the way things had turned out"). Cronbach's alpha for the scale in the current sample was satisfactory ($\alpha = .92$).

3.3 PROCEDURES

The Salvation Army staff (centre managers and clinical employees) were trained in the administration of all outcome measures used in the study by the research team. These measures were integrated into intake protocols and each client was provided a consent form and information relating to the aims, procedures and demands of the research. Those clients wishing to participate completed all measures during an intake session with a staff member from The Salvation Army. Participants were informed they could refuse to answer questions or withdraw from the research at any time. Clinically relevant intake data was entered by The Salvation Army staff into the Salvation Army's online Service and Mission Information System (SAMIS). Forms were then forwarded to the research team.

3.3.1 Data analytic strategy

Visual inspection of the variables' distributions (Tabachnick & Fidell, 2013) showed normality violations. Skewness and kurtosis indexes were used to investigate the normality of the variables with the results suggesting the deviations were not severe, with the values

falling below the acceptable limits of 3 and 10 respectively (Kline, 2016). Proportions of categorical MHC-SF diagnoses (flourishing, languishing and moderately mentally healthy) were identified for the current sample. Community participation means and standard deviations for the current sample, and according to MHC-SF diagnosis category, were utilised for comparisons with population norms. To investigate statistical differences between the norms and the current total, flourishing, moderately mentally healthy and languishing samples, a series of t-tests were conducted on the two community participation subscales (informal social connectedness and civic engagement). To control for the eight comparisons (norms with the current total and mental health category samples for both informal social connectedness and civic engagement) between the samples a Bonferroni adjusted α of .006 was utilised. Pearson correlations were used to determine the relationships between the community participation subscales, mental health (continuous scoring), friends' support and substance specific measures. A multiple linear regression with four blocks was used to examine the influence of community participation, friends' support and substance use specific variables have on mental health. To control for participant characteristics gender, age and primary drug of choice were entered into Block 1. Primary drug of choice was recoded to reflect two categories: (1) alcohol or (2) other. Substance related measures (cravings, refusal self-confidence) were entered into Block 2, social support (friends' general and specific support) was entered into Block 3, and community participation (informal social connectedness, civic engagement) was entered into Block 4.

3.4 RESULTS

3.4.1 Mental health prevalence

All three mental health diagnoses were present in the sample. The majority of participants were moderately mentally healthy (51.7%, *n* = 930) or languishing (37.4%, *n* =

674). The remaining 198 participants indicated they were experiencing flourishing mental health (10.9%).

3.4.2 Community participation

Table 7 provides community participation averages for the total sample, and delineated by MHC-SF diagnosis. In addition, Australian population norms (Berry & Welsh, 2010) are also presented. When compared to the general population (Berry & Welsh, 2010) all participation activities were lower for the total sample, with the exception of volunteer activities. Keeping in touch with friends and family was the most common form of participation, while voluntary sector activity was the least common. Independent t-tests identified there were significant differences between the population and total sample averages for informal social connectedness (t (13,471) = 46.32, $p < .0001$), and civic engagement (t (13,471) = 32.19, $p < .0001$).

Community participation averages were also assessed based on MHC-SF diagnoses. For informal social connectedness, individuals who were flourishing had significantly higher participation than Australian population norms (t (11,899) = 4.22, $p<.0001$), while individuals experiencing moderate mental health (t (12,607) = 29.28, $p<.0001$) and languishing (t (12,369) = 49.75, $p<.0001$) had significantly lower participation. For civic engagement, flourishing individuals had significantly higher participation averages than Australian population norms (t (11,899) = 7.52, $p<.0001$), and moderately mentally healthy (t (12,607) = 19.84, $p<.0001$) and languishing (t (12,369) = 37.11, p<.0001) individuals had significantly lower averages. Regardless of mental health diagnoses, contact with friends and family was the most common activity, while voluntary sector activity was the least common.

A one-way between groups ANOVA investigated the differences between mental health continuum categories and community participation. The first ANOVA was statistically

significant indicating informal social connectedness was influenced by mental health diagnoses, F (2, 1796) = 293.44, p <.001. Analyses with Tukey's HSD indicated individuals with languishing mental health (M = 2.34, SD = .90) had significantly lower informal social connectedness than individuals with moderate mental health (M = 3.12, SD = 1.06), or flourishing mental health (M = 4.21, SD = 1.09). Individuals with moderate mental health also had significantly lower informal social connectedness than individuals with flourishing mental health. The second ANOVA was statistically significant indicating civic engagement was influenced by mental health diagnoses, F (2, 1796) = 298.60, p <.001. Tukey's HSD analyses indicated individuals with languishing mental health (M = 1.39, SD = .54) had significantly lower civic engagement than individuals experiencing moderate mental health (M = 2.04, SD = .98) or flourishing mental health (M = 3.09, SD = 1.34). Individuals with moderate mental health had significantly lower levels of civic engagement than those with flourishing mental health.

Table 7. *Community participation means (M), standard deviations (SD), confidence intervals (CI) and between group t-tests for Australian community population, total, and mental health diagnoses samples.*

	Berry		Current Sample							
			Total		Flourishing		Moderately Mentally Healthy		Languishing	
	(*n* = 11,709)		(*n* = 1,754)		(*n* = 192)		(*n* = 900)		(*n* = 662)	
	M	SD	M	95% CI	M	95% CI	M	95% CI	M	95% CI
Informal Social Connectedness	3.96	.81	2.94**	(2.89, 3.00)	4.21**	(4.05, 4.36)	3.12**	(3.05, 3.19)	2.34**	(2.27, 2.41)
Telephone, email, or mail contact with friends and family	4.32	.97	3.65	(3.58, 3.72)	4.71	(4.52, 4.89)	3.86	(3.76, 3.95)	3.06	(2.95, 3.18)
Chat with neighbours	3.47	1.33	2.56	(2.49, 2.64)	3.97	(3.75, 4.20)	2.71	(2.61, 2.81)	1.96	(1.86, 2.05)
Make time to keep in touch with friends	4.30	1.14	3.07	(3.00, 3.14)	4.36	(4.16, 4.57)	3.29	(3.20, 3.39)	2.40	(2.30, 2.49)

See members of extended family	3.76	1.33	2.48	(2.42, 2.55)	3.78	(3.55, 4.00)	2.62	(2.52, 2.71)	1.94	(1.86, 2.03)
Civic Engagement	2.63	.85	1.91**	(1.86, 1.96)	3.10**	(2.91, 3.28)	2.04**	(1.98, 2.10)	1.39**	(1.34, 1.43)
Organised community activities	2.47	.97	2.25	(2.18, 2.31)	3.82	(3.60, 4.04)	2.41	(2.32, 2.50)	1.58	(1.51, 1.64)
Religious observance	2.17	1.60	1.84	(1.78, 1.91)	2.85	(2.60, 3.09)	1.97	(1.88, 2.06)	1.36	(1.30, 1.43)
Voluntary sector activity	1.62	.80	1.64	(1.59, 1.70)	2.62	(2.39, 2.85)	1.74	(1.66, 1.82)	1.21	(1.16, 1.26)

** $p<.01$

Note: Comparisons for the two subscales (informal social connectedness and civic engagement) depicted in the table are between the Berry mean and the total, flourishing, moderately mentally healthy and languishing categories.

3.4.3 Correlations between mental health with community participation, friendship and clinical measures

Pearson correlations were run to assess the bivariate associations between community participation, mental health, friends' support, cravings and refusal self-confidence (Table 8). The informal social connectedness and civic engagement subscales identically correlate with the MHC-SF full scale ($r = .58$, $p<.01$, two tailed, $N = 1706$, and $r = .58$, $p<.01$, two tailed, $N = 1706$, respectively). The full scale of community participation positively correlated with mental health, specific friendship support for abstinence, general social support and refusal self-confidence, and negatively correlated with cravings for drugs and alcohol. Mental health was strongly positively correlated with community participation, friends support for abstinence and general support, and had small but significant correlations with cravings and refusal self-confidence.

Table 8. *Pearson correlations between community participation, continuous mental health and friends support and clinical measures.*

	1	2	3	4	5	6
1. Informal social connectedness						
2. Civic engagement	.54**					
3. Mental health	.58**	.58**				
4. Friends' support for abstinence	.37**	.20**	.30**			
5. Friends' general social support[a]	.47**	.28**	.39**	.59**		
6. Cravings[b]	-.10**	-.11**	-.22**	-.15**	-.11**	
7. Substance refusal confidence[c]	.15**	.08**	.18**	.14**	-.15**	-.28**

** $p<0.01$; N = 1706

Note: [a]Multidimensional Scale of Perceived Social Support, [b]Desire for Alcohol Questionnaire, [c]Drug Taking Confidence Questionnaire

3.4.4 Factors associated with mental health

Multiple linear regression was utilised to predict continuous mental health. The full model was significant, accounting for 44.7% of the variance in continuous mental health (Table 9). In Step 4, gender, cravings, drug refusal self-efficacy, friends general social support, informal social connectedness and civic engagement were significant predictors ($F(9,1579) = 143.78$, $p < .001$). An independent samples t-test identified that males had higher mental health than females ($t(1026) = -3.01$, $p < .05$).

Table 9. *Multiple linear regression predicting continuous mental health.*

				95% CI	
	b	*SE b*	*β*	Lower	Upper
Step One					
Primary drug of choice	-0.10	0.09	-.04	-0.27	0.07
Gender	0.30	0.09	.09***	0.13	0.46
Age	0.01	0.01	.01	-0.01	0.01
Step Two					
Primary drug of choice	-0.05	0.09	-.02	-0.22	0.12
Gender	0.29	0.08	.09***	0.13	0.45
Age	-0.01	0.01	-.03	-0.01	0.01
Cravings[a]	-0.03	0.01	-.20***	-0.04	-0.03
Substance refusal confidence[b]	0.01	0.01	.13***	0.01	0.01
Step Three					
Primary drug of choice	0.02	0.08	.01	-0.18	0.13
Gender	0.36	0.08	.11***	0.21	0.51
Age	-0.01	0.01	-.04	-0.01	0.01
Cravings[a]	-0.03	0.01	-.17***	-0.04	-0.02

Substance refusal confidence[b]	0.01	0.01	.08**	0.01	0.01
Friends' support for abstinence	0.03	0.01	.10***	0.01	0.04
Friends' general social support[c]	0.07	0.01	.31***	0.05	0.08
Step Four					
Primary drug of choice	-0.09	0.07	-.03	-0.22	0.04
Gender	0.31	0.06	.10***	0.18	0.43
Age	-0.01	0.01	-.04	-0.01	0.01
Cravings[a]	-0.02	0.01	-.12***	-0.03	-0.02
Substance refusal confidence[b]	0.01	0.01	.05**	0.01	0.01
Friends' support for abstinence	0.01	0.01	.04	-0.01	0.02
Friends' general social support[c]	0.03	0.01	.12***	0.02	0.04
Informal social connectedness	0.40	0.03	.29***	0.33	0.46
Civic engagement	0.51	0.03	.33***	0.44	0.57

** $p<.01$, *** $p<.001$; N = 1589

Notes: R^2 = .01 for Step 1, ΔR^2 = .07 for Step 2 (p <.001), ΔR^2 = .14 for Step 3 (p <.001), ΔR^2 = .24 for Step 4 (p <.001). [a]Desires for alcohol questionnaire, [b]Drug Taking Confidence Questionnaire, [c]Multidimensional Scale of Perceived Social Support

3.5 DISCUSSION

The study examined community participation and its relationship to mental health in the context of drug and alcohol misuse. As hypothesised, the current total sample had significantly lower levels of community participation than Australian community population norms. In contrast the analyses regarding mental health diagnoses revealed that individuals who were flourishing prior to entering treatment had higher levels of community participation than individuals experiencing moderate or languishing mental health and the general Australian population. This suggests that despite the presence of problematic substance misuse warranting residential treatment, individuals can experience high levels of emotional

wellbeing and functioning and high levels of community connectedness and engagement. While this may appear counterintuitive for individuals entering residential rehabilitation, Keyes' model of complete mental health demonstrated all three mental health categories can occur in the presence or absence of mental illness (Keyes, 2005b). This was also demonstrated in the context of SUDs (McGaffin et al., 2015). Historically one aspect of this has been captured by the concept of the "dry drunk", a person abstaining from substances but experiencing the emotional and functional problems encountered during their addiction (Flaherty et al., 1955; Gogek, 1994). More recently it has been suggested that positive social capital (such as the current findings of flourishing mental health and high levels of community participation) independent of the intensity of substance misuse, may indicate candidates for less intensive forms of treatment (Granfield & Cloud, 2001). The correlations demonstrated moderate significant relationships in the expected directions. Given the current results were obtained at entry to treatment there is potential that allocation to different treatment intensities or treatment content may be appropriate.

Additionally, there is a need to acknowledge the modified therapeutic community treatment setting which may influence individuals as they enter treatment. It has been argued that one's attitude toward their recovery is supported by observing and being guided by others in recovery (Moos & Moos, 2007). Individuals entering a treatment community may experience exposure to bonding and bridging social capital (Putnam, 2000; Szreter & Woolcock, 2004). That is, individuals find others who may have similar experiences or circumstances who are successfully managing their substance use and engaging in community or recovery oriented activities. If individuals feel a sense of belonging in this community it may inspire hope for their own journey and support a sense of themselves as 'non using' or 'in recovery' (Best et al., 2015a). While participants provided responses early in their treatment admission, these factors may influence their sense of community and subsequent engagement.

Further investigations of the underlying factors (hope, social identity shift, belonging) of community engagement in the context of substance misuse treatment would be beneficial.

Almost 90% of the current sample was experiencing languishing or moderate mental health. Unlike those considered to be flourishing, these individuals had significantly lower levels of community participation than Australian population norms. When examining confidence intervals for the mental health diagnoses, there was a trend for languishing individuals to have lower levels of community participation than individuals experiencing moderate mental health. Individuals with moderate or languishing mental health are not experiencing the range of personal and societal health benefits associated with flourishing mental health (Keyes, 2005a, 2007), nor the benefits of higher levels of community participation, such as fostering a sense of citizenship, and creating or renewing relationships (White, Laudet, & Becker, 2006). While the current cross-sectional results cannot identify causality, theoretically it is possible that individuals with languishing mental health and low community participation may have limited experiences that could provide access to social capital (Cheney, Booth, Borders, & Curran, 2016) and resources to initiate and maintain recovery (Granfield & Cloud, 2001). The variability in levels of community participation across mental health diagnoses suggests, with further investigation, the social capital of clients and their mental health may be identified at treatment entry to facilitate the targeting of social connectedness and civic engagement in treatment (Ding et al., 2015).

A regression analysis was used to examine the predictors of participant's scores on the MHC-SF. The full model predicted 44% of the variance in continuous mental health. As hypothesised, social support from friends (14%) and community participation (24%) variables improved the overall fit of the model, above and beyond more traditional substance use outcomes. The friendship variables acted consistently with previous research, with general support promoting mental health, while specific support is tied to substance use outcomes and was not significant in predicting mental health (Beattie & Longabaugh, 1997). Gender was

also a significant predictor, with women having poorer mental health. This gender difference in mental health is consistent with the finding that women have higher levels of mental illness (Henderson, Andrews, & Hall, 2000), but is also consistent with prior complete mental health research (with the long form of the MHC) indicating that women had poorer mental health than men (Keyes, 2002). The two strongest predictors were the community participation variables, with both informal social connectedness and civic engagement accounting for an additional 24% of the prediction of mental health. These results align with drug and alcohol treatment approaches that promote friends' general social support, such as in Network Therapy (Galanter, 2014), and community participation (e.g. The Community Reinforcement Approach; Best, Beswick, & Walker, 2016b; Meyers, Smith, & Lash, 2002). Given the wide range of support services provided by The Salvation Army it may be that they are well placed to facilitate growth in participants' social networks and activities that promote civic engagement through spiritual affiliations or volunteering (Meyers et al., 2002). However, there is a need for further research to determine the potential of such interventions.

3.5.1 Limitations and future directions

The strengths of the current study include the large sample size, assessing individuals who are seeking residential treatment for their substance misuse, and sampling from services across the east coast of Australia. The main limitation of the present study was the cross sectional design meaning causal associations between the variables could not be established. Future research would benefit from longitudinal investigations of the relationship of mental health and community participation. In particular, determining whether improvements in community participation contribute to reductions in alcohol and other drug problems and a subsequent improvement in mental health.

Other limitations include the use of only faith-based treatment programmes and a primarily male sample (70%). In Australia, there is a significantly higher proportion of males

accessing residential treatment services compared to females (Australian Institute of Health and Welfare (AIHW), 2004; Henderson et al., 2000) and this may reflect overall rates of SUDs but also a male oriented treatment system reducing female treatment (Westermeyer & Boedicker, 2000). Additionally, child care demands may limit or delay women entering residential treatment (Green, 2006), potentially contributing to higher severity of addiction, poorer mental health, and limiting social and civic participation. Further research to elucidate the relationship of gender with mental health and community participation variables is required. These limitations restrict the generalisability of the current findings beyond the current sample. Future research would benefit from utilising balanced gender and secular and non-secular treatment comparison groups.

Compared to a previous sample of individuals seeking treatment for alcohol and other drug misuse, the current sample had higher rates of languishing (23.8% and 37.4%, respectively; McGaffin et al., 2015). The rates of moderate mental health were similar between the current and previous recovery samples (51.7% and 54.3%, respectively); while the rates of flourishing were lower for the current sample (10.9% and 21.9%, respectively). The current reduced proportions of flourishing and increased proportions of languishing is as might be expected for individuals entering residential rehabilitation. It may additionally be the result of having a larger sample that may be more representative of the population, or surveying respondents who are in poorer health due to demand on services (e.g. limited number of beds, high volume of referrals). In addition to the natural variance due to the time between recruiting participants for the two studies, the MHC-SF has moderate test-retest reliability over a 9-month period (.65; Lamers et al., 2011). Future research confirming the test-retest reliability of the MHC-SF in SUDs contexts may help explain any natural fluctuations in proportions.

Given that informal social connectedness has been shown to most strongly predict mental health (Ding et al., 2015), and individuals who were flourishing were more likely to be

in contact with friends than any other group, it is likely social networks are an important resource for investigation (Kumar, McNeely, & Latkin, 2016). The social connection of community participation could be a potential target in treatment and aftercare, such as providing or refining skills to speak to neighbours, or increasing the number of abstainers in the social network (Best et al., 2015a; Best et al., 2016a; Best et al., 2016b; Best et al., 2015b). In addition, while there is research indicating the impact of social relationships on achieving abstinence in individuals recovering from drug and alcohol misuse (Best et al., 2016c; Brown, 2015; Tracy et al., 2016; Trocchio et al., 2013), there is a dearth of investigations relating to mental health outcomes.

At an individual level the current results provide additional support for treatments which address social and community resources in conjunction with substance misuse (Best et al., 2016b; Galanter, 2014; Meyers, Roozen, & Smith, 2011; Meyers et al., 2002). However, there is evidence for the social transmission of (social) capital resources indicating we need not think of it as exclusive to individuals (Best & Laudet, 2010). "Collective recovery capital" is proposed to be generated through engagement in the local community beyond substance misuse or recovery activities (Best & Gilman, 2010). In other words, hope and support is provided to individuals who misuse substances and may think recovery is not possible, or who may be just starting their journey, and it has been argued the broader local community is enriched by witnessing and benefitting from individuals in recovery 'giving back' (Best & Gilman, 2010; Best & Laudet, 2010). Through future policy and funding investment in community recovery groups, there may be a natural magnification of access and accumulation of improvements in wider areas of functioning for individuals in recovery for SUDs (Best & Laudet, 2010; Laudet, 2008; White, 2007).

Despite limitations, this study offers a unique exploration of mental health and community participation in a drug and alcohol misuse context. While the relationship between

mental health and community participation has been investigated previously, this is one of the first studies to delineate frequencies by mental health diagnoses.

3.5.2 What are the longitudinal contributors to mental health?

The current results provided preliminary support for the relationship between social capital and mental health. Individuals who were experiencing flourishing mental health prior to entering treatment having significantly higher rates of community participation than Australian community population norms (McGaffin, Deane, & Kelly, 2017). However, only 10.9% of the current study sample was experiencing flourishing mental health at entry to treatment. Unlike those considered to be flourishing, the remaining individuals had significantly lower levels of community participation than Australian population norms. These individuals are not benefitting from the personal or societal health benefits associated with flourishing mental health (Keyes, 2005a, 2007), nor the benefits of higher levels of community participation, such as fostering a sense of citizenship, and creating or renewing relationships (White et al., 2006). Optimal mental health and the potential capacity it provides individuals to accumulate resources to sustain their ongoing recovery and coping remains a primary research focus to address the needs of participants experiencing languishing or moderate mental health (Fredrickson, 2004). Regardless of an individual's mental health, community events which brought people together was the most frequent community participation activity (McGaffin et al., 2017). While people were engaging with individuals in their communities, the type of relationships, form of support and substance use status of individuals in these connections was unknown. There is research describing the impact of social relationships on achieving abstinence in individuals recovering from drug and alcohol misuse (Best et al., 2016a; Brown, 2015; Tracy et al., 2016; Trocchio et al., 2013), however, there is a dearth of investigations with mental health outcomes and the mechanisms linking social networks and mental health. It is hoped that investigating these social connections can

illuminate ways they contribute to flourishing mental health in addition to identifying potential targets for treatment and aftercare.

The following longitudinal study aims to identify whether changes in the support provided by friends and family predict mental health as an outcome of recovery from SUDs. Secondly, it aims to identify any relationships between social networks and mental health which may be mediated by substance use severity.

CHAPTER FOUR

STUDY 3: SOCIAL SUPPORT AND MENTAL HEALTH DURING RECOVERY FROM DRUG AND ALCOHOL PROBLEMS

This chapter has been submitted as a paper to the journal *Addictive Research & Theory*.

Modifications were made to the paper to conform to the thesis review process.

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4.1 INTRODUCTION

While recovery from SUDs has historically been measured with abstinence based outcomes (Garbutt et al., 1999; Laudet & White, 2010) individuals can experience improvements in wider areas of functioning without abstaining (Best & Laudet, 2010; Laudet, 2008; White, 2007). Many of these domains of improvement can be considered components of recovery capital, defined as the internal and external resources a person can utilise to initiate and maintain their recovery(Granfield & Cloud, 1999). When individuals are able to leverage these resources it is proposed they experience improved QoL, a sense of empowerment (Best & Laudet, 2010), and increased mental health (Keyes, 2002). Research has identified that the resources individuals draw upon come from the broader components of social, physical, human and cultural capital (Best & Laudet, 2010; Cloud & Granfield, 2008). Social capital is defined by Cloud and Granfield (2008) as the sum of resources attained through relationships, both in the form of support and obligations to social groups. Physical capital is defined as tangible assets such as property or money (Cloud & Granfield, 2008). Human capital covers individual characteristics such as skills, aspirations, hopes and personal resources (Cloud & Granfield, 2008). Lastly, cultural capital is defined as the values, beliefs and attitudes related to social conformity (Cloud & Granfield, 2008). These capital domains originated in economic and sociological fields (Bourdieu & Wacquant, 1992; Putnam, 2000), and while their importance in substance use recovery has grown (Burns & Marks, 2013) some conceptual confusion remains (Best & Laudet, 2010). This confusion is most relevant for social capital as it encapsulates both social network support and community engagement (Putnam, 2000) and is seen as the critical determinant for increasing personal strengths and tapping into other capital resources and supports (Best & Laudet, 2010).

Community participation is one element of social capital (Putnam, 2000) and is considered to be “what people do” to engage in society (Harpham et al., 2002). Higher levels of community participation has been associated with increased mental health and reduced

experiences of mental illness (De Silva et al., 2005; Phelan et al., 2000; Skrabski et al., 2003; Ziersch, 2005). When investigated in an Australian sample who sought treatment for SUDs, individuals with flourishing mental health prior to entering treatment had significantly higher rates of community participation than Australian community population norms(McGaffin et al., 2017). In addition, regardless of an individual's mental health, community events which brought people together was the most frequent community participation activity (McGaffin et al., 2017). While people were engaging with individuals in their communities, the type of relationship, form of support and substance use status of individuals in these connections was unknown.

Social support is the second element of social capital (Putnam, 2000) and is a multifaceted concept (Cohen et al., 2000). Elements of support such as, the number or types and functions of relationships, and the meaningful aid provided by network members (Cohen et al., 2000) have been investigated in the context of substance misuse. Previous research has consistently found that substance use outcomes are more positive when individuals have an increase in abstaining friends in their social network (Litt et al., 2007; Litt et al., 2009; Longabaugh et al., 2010; Trocchio et al., 2013). Greater success has also been demonstrated when friends in the network provide specific support for the individual in recovery to maintain their abstinence (Beattie & Longabaugh, 1997; Bond et al., 2003; Dobkin et al., 2002; Tracy et al., 2016; Zywiak et al., 2009).

Even when not explicitly targeted in treatment, individuals can still change their social networks throughout their recovery journey. In a study of 57 people receiving treatment for AoD problems, the number of drug users in each participant's social network was identified (McDonald et al., 2011). Measures were completed at intake to treatment and every three months for 15 months. Participants who had multiple drug users in their social network over the 15 months had a marked increase in their drug use, whereas participants who never or

occasionally reported drug users in their networks experienced a small decline in their use (McDonald et al., 2011).

Social networks have also been targeted for change as an element of treatment. In a randomized trial of individuals who were newly detoxified from alcohol, 187 participants were assigned to either standard aftercare or to "network support" (Litt et al., 2007). The aim of network support was to add one abstinent individual to the social network. This was achieved by encouraging attendance at AA meetings and exploring ways to change the network (e.g. reconnecting with nondrinking friends, going on a family outing; Litt et al., 2007). When compared to standard treatment, adding one abstinent individual increased the likelihood of maintaining abstinence from alcohol by 27% at one year follow-up (Litt et al., 2007). At two year follow-up, adding the abstinent individual resulted in 20% more abstinent days (Litt et al., 2009). In a study examining the effects of AA utilisation on 30 day abstinence, individuals with "drier" and more religious social networks were more likely to be abstinent despite not attending AA (Avalos & Mulia, 2012). In a five year follow-up of American and Swedish participants, individuals who had a social network which did not use drugs or alcohol were approximately 3 times more likely to be abstinent (Trocchio et al., 2013). Amongst a sample of 284 women, it was only an increased number of substance users in the social network at 6 months follow-up that was associated with increased substance use at 12 months follow-up (Tracy et al., 2016).

These findings are consistent with the results from Project MATCH which identified that the single biggest predictor of maintained abstinence was moving from a social network supportive of drinking to a social network supportive of recovery (Longabaugh et al., 2010). However, recovery in this previous research has referred to drug and alcohol use outcomes. Research and treatment for many disorders are adopting wellness outcomes as indicators of recovery and this is increasingly occurring for those with SUDs (Best et al., 2012; De Maeyer et al., 2011; Donovan et al., 2005).

Keyes' model of complete mental health has been introduced as a comprehensive wellbeing outcome (Keyes, 2007). The MHC-SF measure was developed to assess complete mental health and has the ability to "diagnose" individuals according to three categories; flourishing, moderately mentally healthy or languishing (Keyes, 2002). It has been found that these mental health constructs are distinct from mental illness constructs and all three categories can occur in the presence or absence of mental illness (Keyes, 2002). When investigated in participants who had attended residential drug and alcohol treatment, it was found that individuals were represented in all three "diagnoses" whether they were using or abstaining from substances (McGaffin et al., 2015). While there is research describing the impact of social relationships on achieving abstinence in individuals recovering from drug and alcohol misuse (Best et al., 2016a; Brown, 2015; Tracy et al., 2016; Trocchio et al., 2013), there is a dearth of investigations relating to mental health outcomes. One study indicated the number of abstainers in a network had no impact on an individuals' mental health, however, the specific support for abstinence in a network helped buffer the negative effects of stress (Hillios, 2014).

In addition, there is limited research on the mechanisms which link social networks to treatment outcomes (Mawson, Best, Beckwith, Dingle, & Lubman, 2015). In a general community sample of American adolescents, the relationship between social capital and depression was found to be mediated by SUD (Awgu, Magura, & Coryn, 2016). That is, social capital was associated with reduced experience of substance use, which in turn was positively associated with symptoms of depression (Awgu et al., 2016). Social capital also had a direct association with depression and SUD (Awgu et al., 2016). While these findings establish links between social capital, substance use and mental disorder, the relationship between social capital, mental health and other drug and alcohol outcomes remains unclear. Given previous research, it is likely that increased social support for abstinence will be related to reduced severity of alcohol and other drug abuse (Avalos & Mulia, 2012; Longabaugh et

al., 2010; Trocchio et al., 2013). In turn, reduced alcohol and drug use has been shown to predict improvements in complete mental health (McGaffin et al., 2015). Although one prior study found no direct relationship between support for abstinence and mental health (Hillios, 2014), it is possible that substance use mediates this relationship. General social support and social connectedness are likely to have a direct relationship with mental health (Phelan et al., 2000; Skrabski et al., 2003; Ziersch, 2005) but it is unknown whether substance use will have any mediating effect on this relationship. There is therefore a need for longitudinal investigations of possible causal connections between social networks, substance use and mental health.

The current research aimed to identify whether changes in the support provided by friends' and family predicted mental health as an outcome of recovery from SUDs. It was hypothesised that changes in the social support variables of general support, friends' support for abstinence and informal social connectedness would predict mental health even when accounting for changes in substance use severity. Secondly, the research aimed to identify the relationship between social networks and mental health. It was hypothesised that the relationship between social support (general social support, friends' support for abstinence, and informal social connectedness) and mental health would be mediated by substance use severity.

4.2 METHODS

All measures, forms and procedures were approved by the University Human Research Ethics Committee (HE12/428). The data for the current study was collected as part of a wider clinical initiative aimed at determining client outcomes. However, the candidate provided a significant contribution to the work. Breanna McGaffin contributed to 80% of the development of concept, design, data collection and analysis, drafting and revision of the manuscripts and chapter. Professor Frank Deane contributed 10 % and Associate Professor

Peter Kelly contributed 10% to the development of concept, design, data collection and analysis, drafting and revision of the manuscripts and chapter.

4.2.1 Participants

Participants were the 1815 individuals who were eligible for Study 2 (See Chapter 3). The focus of this study was on individuals who were successfully contacted to complete the 3-month follow-up. It is important to note that clients who did not complete the entire treatment program were not excluded from the study. Anyone who had engaged with the service was considered to have received treatment. One thousand and eighty nine individuals were eligible for follow-up (see Figure 4), of those, 398 were successfully contacted for a 3-month follow-up interview (36.5%). Of these participants 42% withdrew consent, while 10.8% of interviews were discontinued by either the participant or the researcher (due to suicide risk, distress or intoxication). The final follow-up sample constituted 47.2% of participants who were successfully contacted.

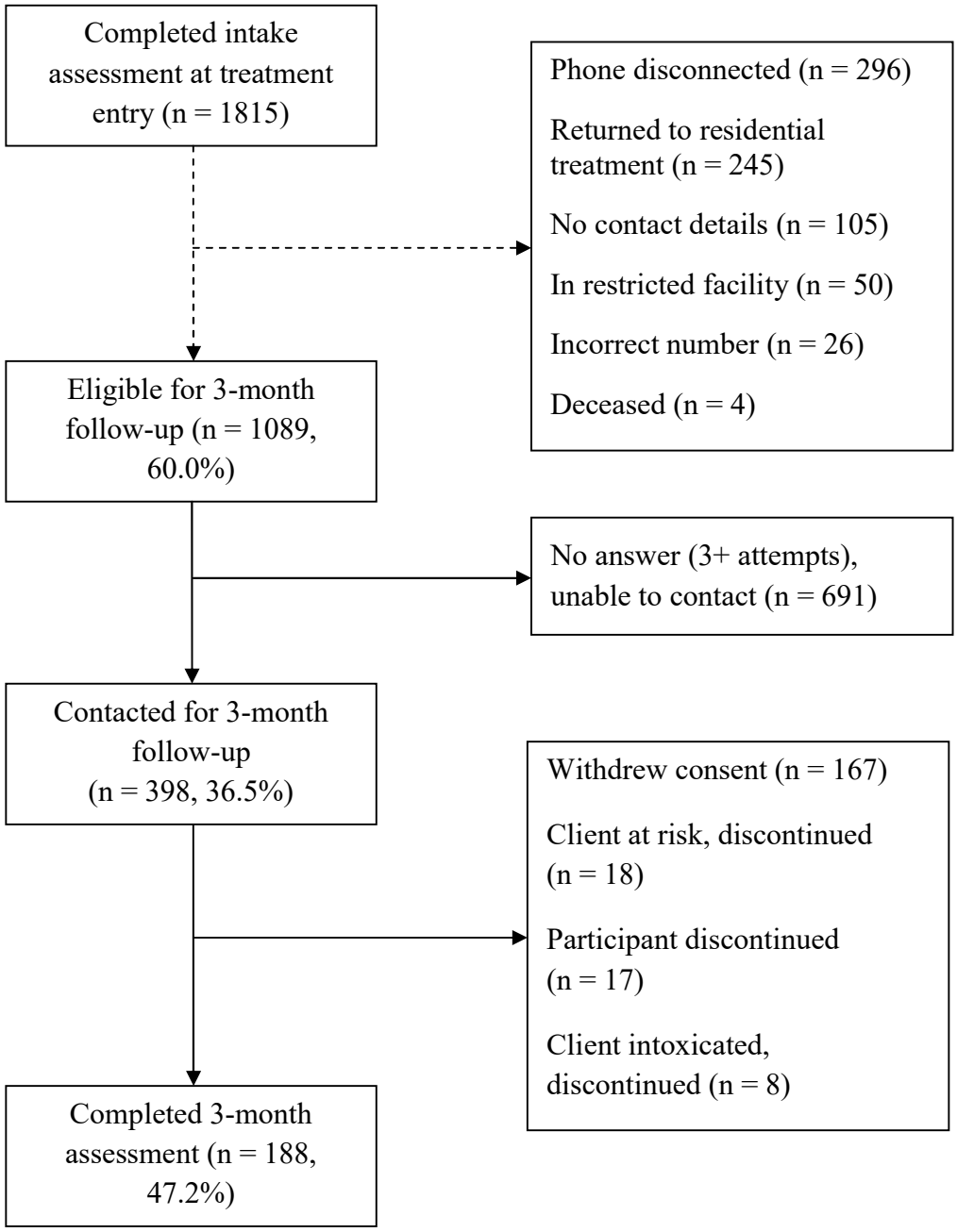

Figure 4. Participant flow from baseline to follow-up assessment.

Participants' demographic information was the same at baseline (see Table 6). The characteristics of the individuals who completed both baseline and 3-month follow-up assessments is reported in Table 10.

Table 10. *Demographic Information*.

Characteristics	*n*	Valid %	*M*	*SD*
Gender				
Male	135	71.8		
Female	53	28.2		
Days in treatment			153.76	122.34
Age			40.76	11.28
Self-reported Primary Substance				
Alcohol	101	54.0		
Methamphetamines	38	20.4		
Cannabis	15	8.0		
Other	15	8.0		
Polysubstance	12	6.4		
Heroin and other opiates	6	3.2		
Education				
Primary	2	01.4		
Lower secondary (Years 7-9)	25	17.6		
Upper secondary (Years 10-12)	93	65.5		

Post-secondary	22	15.5

N = 188

Note: Participants sometimes indicated multiple drugs and alcohol as their primary drug of choice, these responses were grouped together to form a polysubstance category.

4.2.2 Measures

4.2.2.1 Australian Community Participation Questionnaire.

Informal social connectedness was measured with a 4 item subscale derived from the Australian Community Participation Questionnaire-Short Form (ACPQ; Ding et al., 2015). Participants rate the frequency of their participation before entering treatment on a 6 point Likert scale (1 = never to 6 = very often). Informal social connectedness involves contact with family, friends, neighbours and workmates ("Chat with your neighbours"; Berry et al., 2007). Cronbach's alpha for the informal social connectedness subscale in the current sample was satisfactory (α = .76).

4.2.2.2 Mental Health Continuum – Short Form.

The Mental Health Continuum – Short Form (MHC-SF) is a 14 item self-report questionnaire that assesses positive mental health (Keyes, 2002). Participants rate the frequency of each feeling in the past month on a 6 point Likert scale (0 = never to 5 = every day). Three items form the Emotional Wellbeing subscale which assesses positive emotions towards one's life ("Satisfied with life"), 5 items form the Social Wellbeing subscale ("That you had something important to contribute to society") and six items form the Psychological Wellbeing subscale ("That you liked most parts of your personality") which assesses engagement and functioning in one's social and private life. Only the full scale score was utilised. Cronbach's alpha in the current sample was satisfactory (α = .93).

The scale can be scored both continuously and categorically (Keyes, 2009). Continuous scoring is the sum of responses to the 14 items, with higher scores indicating better mental health. Categorical scoring results in what Keyes refers to as "diagnoses" of flourishing, languishing or moderate mental health (Keyes, 2002). To be flourishing, individuals must respond 'every day' or 'almost every day' to at least one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items. To be languishing, individuals will respond 'never' or 'once or twice' to at least one emotional wellbeing item and six social and psychological wellbeing items. Individuals who are neither flourishing nor languishing are diagnosed with moderate mental health. Both scoring methods are utilised in the current research.

4.2.2.3 Friends' Support for Abstinence.

Specific recovery support was measured with a 4 item adaptation (Humphreys & Noke, 1997) of the Social Network Social Influence Scale (Collins et al., 1990). Participants responded on a 5 point Likert scale (0 = never to 4 = often) to assess the support friends provide when trying to cease using substances ("My friends offer advice about quitting drugs or alcohol, without nagging"). Cronbach's alpha in the current sample was satisfactory (α = .64). The reliability of this scale in the current sample is less than desirable, given it is only 4 items the mean inter-item correlation was also computed to investigate internal consistency. The mean inter-item correlation for the scale was .38, which is acceptable (Briggs & Cheek, 1986).

4.2.2.4 Multidimensional Scale of Perceived Social Support.

General social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, 1988). The MSPSS is a 12 item scale and for the purposes of the current study the 4 items pertaining to support from friends was utilised ("My friends really try to help me"). Participants were asked to rate their agreement on a 7 point Likert

scale (1 = very strongly disagree to 7 = very strongly agree). Cronbach's alpha for the scale in the current sample was satisfactory (α = .93).

4.2.2.5 Addiction Severity Index.

The Addiction Severity Index (ASI) is a semi-structured interview commonly used as a component of comprehensive assessment in substance abuse treatment programs (McLellan et al., 1992). Several domains are assessed; drug, alcohol, medical, family, psychiatric, employment, and legal. Cronbach alpha's are acceptable for the composites (α = .67 to .85) (Zanis et al., 1997). Cronbach's alpha for the alcohol severity composite was satisfactory (α = .76) but somewhat low for the drug severity composite (α = .59).

4.2.3 Procedures

The Salvation Army staff (centre managers and clinical employees) were trained in the administration of all outcome measures used in the study by the research team. These measures were integrated into intake protocols and each client was provided a consent form and information relating to the aims, procedures and demands of the research. Consent indicated the client was willing to complete the assessment and participate in follow-up data collection procedures. Those clients wishing to participate completed the consent form and all measures during this intake session. Clinically relevant intake data was entered by The Salvation Army staff into the Salvation Army's online Service and Mission Information System (SAMIS). Forms were then forwarded to the research team.

Follow-up procedures involved a 3-month post-discharge telephone interview. Follow-up contact was attempted 3 months ± 2 weeks post-discharge. To be eligible for follow-up at 3-months post discharge participants must have provided a correct and active telephone contact number, not been admitted to a secure facility, readmitted to treatment, or deceased (see Figure 1). A minimum of 3 contact attempts were made at a range of times to counter

varying time restrictions (i.e., work schedules). At least 1 attempt was made in regular contact hours (10am-4pm on a weekday), and at least 1 attempt made outside regular hours (4-7pm weekdays or on a Saturday). If the client answered, they were provided the opportunity to complete the survey, or book in another suitable time within the 3 months ± 2 weeks post-discharge period. If unanswered, a voice message was left (if available) providing a free call number. In cases where the phone number was disconnected or incorrect, contact was attempted with a next of kin to confirm contact details. As initial consent was gained up to 1 year before contact was attempted, contacted participants were provided information and given the opportunity to withdraw. Consenting clients were then presented with the survey items over the phone. Any clients deemed 'at risk' (i.e. suicidal, distressed, in need of referral to support agency) by the researcher were immediately discontinued.

All interviews were conducted by trained research assistants from the University of Wollongong. Participants were informed they could cease participation at any time during the interview. Participants were also informed that the research assistant conducting the follow-up interview was from the University of Wollongong and not a member of The Salvation Army. This was done to reduce socially desirable responding. Participants were provided with an AUD$20 gift voucher for completing the follow-up interview.

4.2.3.1 Data Analytic Strategy

Visual inspection of the variables' distributions (Tabachnick & Fidell, 2013) showed normality violations. Skewness and kurtosis indexes were used to investigate the normality of the variables with the results suggesting the deviations were not severe, with the values falling below the acceptable limits of 3 and 10 respectively (Kline, 2016). . Pearson correlations were used to determine the relationships between social support scales, mental health (continuous scoring), and substance specific measures. To examine how changes in variables predicted

mental health, a regression analysis where baseline scores (Time 1) were used as a predictor of 3 month follow-up scores (Time 2) was conducted and the standardised residuals from the regressions were saved. These standardised residuals were used in a multiple linear regression to examine the influence changes in social support and substance use specific variables have on (continuous) mental health. To control for baseline levels of continuous mental health and other participant demographic variables, these were entered into Block 1. Alcohol and drug severity residuals were entered in Block 2. While social support residuals were entered in Block 3 to investigate the additional variance they may offer above traditional substance use variables. Lastly three multiple mediation analyses with 10 000 bootstrap resamples were conducted with the process macro from Hayes (2013). The mediations assessed the influence substance use has on the relationship between social support and mental health. Bootstrap resampling does not impose normality requirements so was therefore suitable for our data (Preacher & Hayes, 2008). Each model used continuous mental health (Time 2) as the dependent variable, alcohol and drug composite scores (Time 2) from the ASI as mediators, and intake measures (Time 1) of all variables in the model as covariates to control for baseline scores. The first mediation model used general social support at Time 2 as the independent variable (Figure 5), the second utilised friends' support for abstinence at Time 2 (Figure 6), and informal social connectedness at Time 2 was used in the third model (Figure 7).

4.3 RESULTS

4.3.1 Attrition

Differences between participants who had provided data at follow-up and those who had only completed the baseline assessment were investigated. An independent t-test of 15 baseline variables (for example, days in treatment, addiction severity) identified some significant differences. These differences appeared for the ASI alcohol composite score (t (921) = 2.56, $p < .05$), ASI legal composite score (t (197) = -2.72, $p < .05$), ASI drug composite score (t (798) = -2.08, $p < .05$) and age (t (225) = 5.21, $p < .01$). Participants who had not completed all follow-up assessments had lower alcohol severity, higher legal severity, higher drug severity and were younger (M = 36.28, SD = 10.27) than participants who had completed the follow-up assessment (M = 40.76, SD = 11.28). The following results are therefore more applicable to those individuals with more severe alcohol problems, less severe legal and drug problems and near our obtained mean age (41 years).

4.3.2 Correlations with social support change and substance use severity

Spearman correlations were run to assess the bivariate associations between the standardised residual change scores of friendship support variables, informal social connectedness, and substance use severity with mental health at entry to treatment and at 3-month follow-up (Table 11). The correlations demonstrate moderate significant relationships in the expected direction for the general friendship support change scores, informal social connectedness change scores and three-month follow-up mental health. The friendship support for abstinence change score was not significantly correlated with mental health or substance use severity change scores, however the direction of the relationships was as expected. Mental health at the 3 month post-discharge follow-up was negatively correlated with alcohol and drug substance use severity change scores.

Table 11. *Pearson correlations between standardised change residuals for friendship support, informal social connectedness, substance use severity and continuous mental health.*

	1	2	3	4	5	6
1. ΔRES Friends' general social support[a]						
2. ΔRES Friends' support for abstinence	.25**					
3. ΔRES Informal social connectedness	.31**	.10				
4. ΔRES Alcohol severity	-.08	-.06	-.13			
5. ΔRES Drug severity	-.09	.02	-.20*	.29**		
6. Baseline mental health	-.14	-.05	-.10	.03	-.13	
7. 3-month mental health	.45**	.01	.48**	-.30**	-.28**	.33**

n = 105; ** p<0.01; * p<.05; N = 105

Note: ΔRES indicates standardised change residuals; [a]Multidimensional Scale of Perceived Social Support

4.3.3 Predicting mental health

Multiple linear regression was utilised to predict continuous mental health. To control for participant characteristics and baseline levels of mental health, gender, age, primary drug of choice and continuous mental health at baseline were entered into Block 1. Primary drug of choice was recoded to reflect two categories: (1) alcohol or (2) other. Standardised change score residuals of alcohol and drug severity were entered into Block 2. Standardised change score residuals of friends social support variables and informal social connectedness were entered into Block 3. The full model was significant, accounting for 47.7% of the variance in continuous mental health (Table 12). In Step 3, baseline mental health, alcohol severity change, general friendship support change and informal social connectedness change were

significant predictors ($F(9,1155) = 9.53$, $p < .001$). An additional 24% of variance was explained with the addition of Step 3.

Table 12. *Multiple linear regression predicting continuous mental health.*

				95% CI	
	b	*SE b*	*β*	Lower	Upper
Step One					
Baseline mental health	0.33	0.10	.33**	0.14	0.53
Primary drug of choice	2.36	3.33	.08	-4.24	8.96
Gender	1.58	2.96	.05	-4.30	7.45
Age	0.05	0.14	.04	-0.22	0.33
Step Two					
Baseline mental health	0.32	0.09	.31**	0.13	0.50
Primary drug of choice	-0.32	3.23	-.01	-6.72	6.09
Gender	0.76	2.80	.03	-4.80	6.32
Age	-0.12	0.14	-.09	-0.39	0.16
ΔRES Alcohol severity	-4.57	1.64	-.27**	-7.82	-1.33
ΔRES Drug severity	-2.47	1.37	-.17	-5.18	0.24
Step Three					
Baseline mental health	0.24	0.08	.24**	0.08	0.40
Primary drug of choice	-1.38	2.71	-.05	-6.77	4.00
Gender	0.87	2.35	.03	-3.80	5.54
Age	-0.17	0.12	-.13	-0.40	0.06
ΔRES Alcohol severity	-3.81	1.38	-.23**	-6.54	-1.07
ΔRES Drug severity	-1.54	1.16	-.11	-3.84	0.76
ΔRES Friends' general social support[a]	4.80	1.20	.33***	2.41	7.18

ΔRES Friends' support for abstinence	-1.26	1.07	-.09	-3.38	0.86
ΔRES Informal social connectedness	4.99	1.24	.32***	2.53	7.44

** p<.01, *** p<.001; N = 104

Notes: R^2 = .12 for Step 1 (p < .05), ΔR^2 = .12 for Step 2 (p <.01), ΔR^2 = .24 for Step 3 (p <.001); [a]Multidimensional Scale of Perceived Social Support

4.3.4 Mediating relationships

Baseline levels of the independent, dependent and mediator variables were controlled for by being entered as covariates in each mediation model. In the first mediation model (Figure 5; n = 107), only alcohol severity predicted mental health (β = -17.48, p < .01). There were no indirect effects for alcohol severity (β = .08, 95% CI [-.02, .26]) or drug severity (β = .02, 95% CI [-.03, .18]). When the mediators were entered into the model, the total effect of general support from friends on mental health (c = .907 (.197), p = .001) remained significant (c′ = .808 (.187), p = .001), however, the indirect effects indicated alcohol and drug severity did not mediate the relationship.

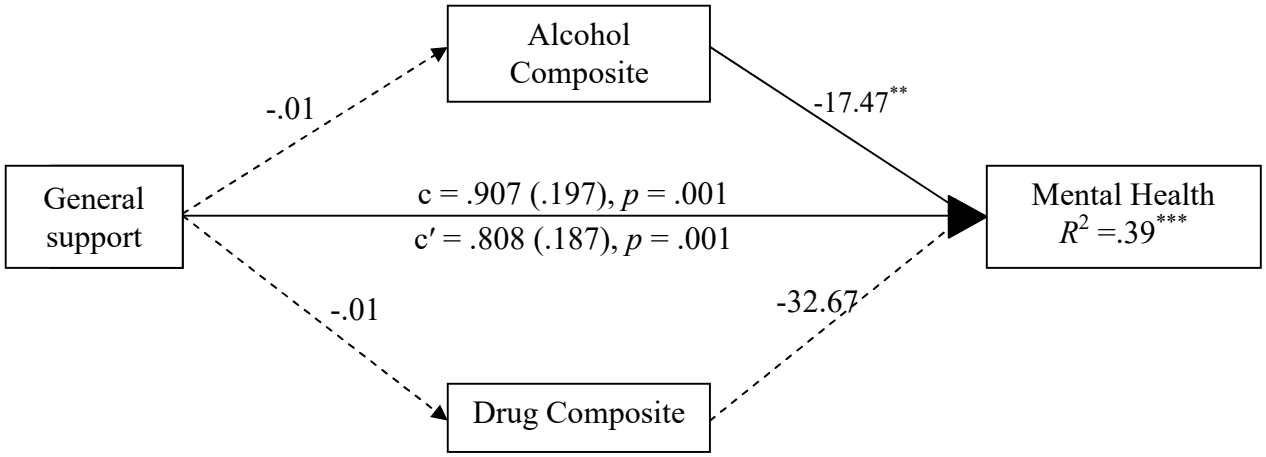

Figure 5. Multiple mediation model testing alcohol and drug composite scores as mediators between general friend support and mental health.

Note: Coefficients are unstandardized and broken lines represent nonsignificance.

$^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$; *c* = total effect of X on Y; *c′* = direct effect of X on Y via M.

In the second mediation model (Figure 6; *n* = 106), only alcohol severity predicted mental health (β =−23.24, *p* < .001). No indirect effect for alcohol (β = -.11, 95% CI [-.42, .13]) or drug severity (β =−.02, 95% CI [-.24, .06]) was found. When the mediators were entered into the model, the total effect of friends' support for abstinence on mental health (c = .259 (.392), *p* = .512) remained insignificant (c′ = .395 (.364), *p* = .280), indicating that there was no mediation of the relationship.

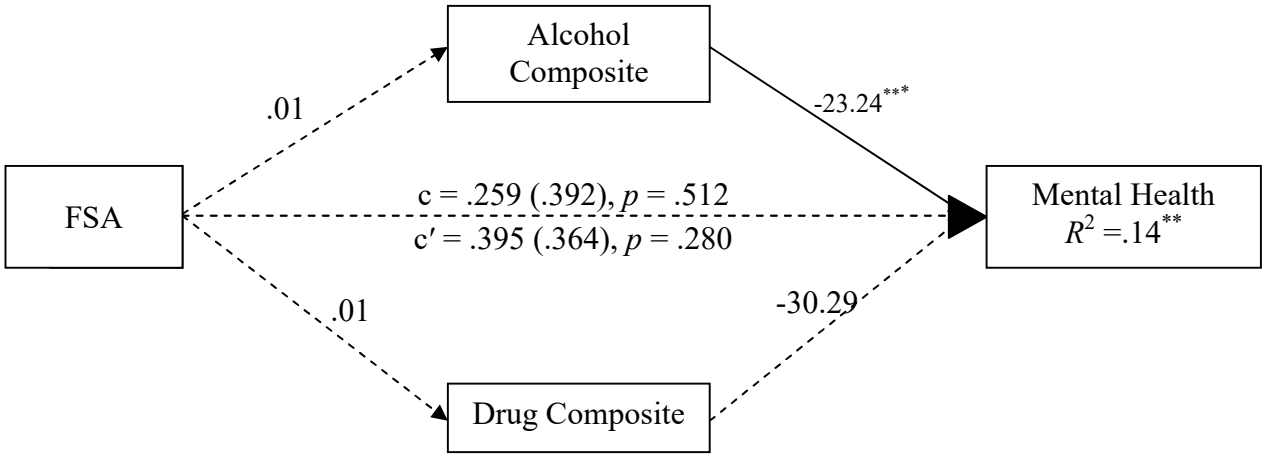

Figure 6. Multiple mediation model testing alcohol and drug composite scores as mediators between friends' support for abstinence and mental health.

Note: FSA = Friends Support for Abstinence. Coefficients are unstandardized and broken lines represent nonsignificance.

$^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$; *c* = total effect of X on Y; *c′* = direct effect of X on Y via M.

In the third mediation model (Figure 7; *n* = 112), informal social connectedness predicted alcohol severity (β =−.05, *p* < .05) and drug severity (β =−.01, *p* < .05). Alcohol severity predicted mental health (β =−15.69, *p* < .01). A significant indirect effect for alcohol severity was found (β = .78, 85% CI [.14, 1.90]). When the mediators were entered into the model the total effect of informal social connectedness on mental health (c = 6.27 (1.16), *p* =

.001) decreased but remained significant (c′ = 5.19 (1.15), p = .001) indicating alcohol severity partially mediated the relationship.

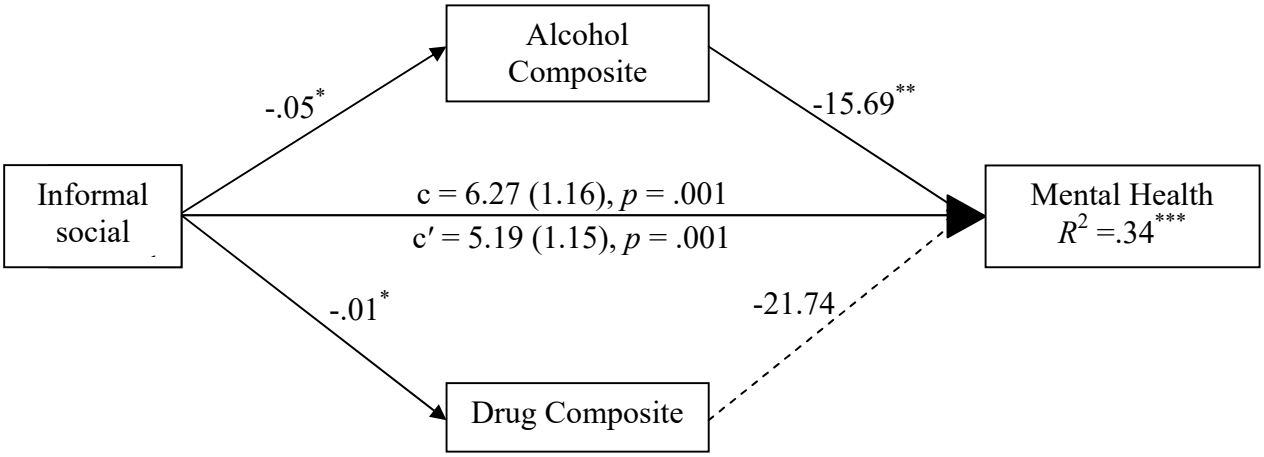

Figure 7. Multiple mediation model testing alcohol and drug composite scores as mediators between informal social connectedness and mental health.

Note: Coefficients are unstandardized and broken lines represent nonsignificance.

***p < .001; **p < .01; *p < .05; c = total effect of X on Y; c' = direct effect of X on Y via M.

4.4 DISCUSSION

This study investigated whether changes in support provided by friends and family predicted mental health, a wellness outcome of recovery from SUDs. Results from the regression analysis indicated the full model predicted 47.7% of the variance in mental health. Consistent with previous research (McGaffin et al., 2015), reductions in alcohol use severity was associated with improved complete mental health even when baseline levels (entry to treatment) of mental health were controlled. In the current study reductions in drugs other than alcohol did not appear to significantly contribute to improved mental health. This was despite the bivariate correlation between mental health and reductions in drug severity being similar in magnitude and direction to the correlation between mental health and alcohol

severity. Of the approximately 105 participants who provided baseline and follow-up data, 46% indicated alcohol as their primary substance of concern. This percentage may indicate there was greater power to detect the mediating effects of alcohol severity. The addition of social support variables to the regression accounted for an additional 24% of the variance in mental health over and above changes in alcohol use severity and other background variables. The social support variables relationships to mental health varied according to the type of support (general or specific), these variations are consistent with prior research. As hypothesised for the regression analysis, greater general social support and informal social connectedness added incremental variance above reduced alcohol use severity in the prediction of mental health. In contrast, more support for abstinence from friends did not appear to be associated with improved mental health. This is consistent with previous findings as specific support has been shown to be related to substance use outcomes as opposed to wellbeing outcomes (Beattie & Longabaugh, 1997; McGaffin et al., 2015). These results indicate the more friends who are supportive of abstinence is not associated with increased mental health, instead the general support provided by friends and the informal engagement with those in the network is more important for one's mental health.

The multiple mediation models also identified inconsistent relationships between social networks and mental health. General friendship support had a direct effect on mental health, but this relationship was not mediated by alcohol or drug severity (Figure 5). Friends' support for abstinence did not have a direct relationship with mental health and was not mediated by alcohol or drug severity (Figure 6). In contrast, alcohol severity partially mediated the relationship between informal social connectedness and mental health (Figure 7). Overall the mediation analyses provided findings inconsistent with the hypothesised mediating role of substance use on the relationship between social support variables and mental health. These results indicate the relationship between social support, substance use severity and mental health vary depending on the form of support being assessed.

General social support is an attitudinal agreement rating specific to friends. Similarly, support for abstinence is friend specific but is a frequency rating of their support. The direct relationship between general social supports and mental health is consistent with previous research (Beattie & Longabaugh, 1997). Additionally, friendship support for abstinence not having a direct relationship with mental health is also consistent with previous research (Beattie & Longabaugh, 1997). A surprising finding was that friends' support for abstinence was not related to alcohol or drug use severity. While support for abstinence has previously been related to abstinence outcomes (Litt et al., 2007; Longabaugh et al., 2010), it may be that the current measure is too narrow and does not account for drinking behaviour of friends' in the network. It is possible that although friends support abstinence in others, they continue to drink alcohol or use drugs themselves. Thus, it may be that support for abstinence and network substance use should both be assessed to sufficiently explain the relationship with substance use severity (Longabaugh et al., 2010), and potentially mental health.

Informal social connectedness is a frequency rating of the person's access to individuals outside the friend network and the various forms of communication this may involve (phone, email, in person). The mediation results indicate that more general informal societal interactions is related to reduced alcohol use severity, which is associated with complete mental health. While a "close" friendship network, that is either generally or specifically supportive, may not be associated with substance use severity (Longabaugh et al., 2010) broader social participation is. It is possible that this broader social participation reflects wider social capital connections since it includes sources such as neighbours and workmates. Perhaps individuals who have expanded social connections outside of immediate friendship networks have lower substance use and grater complete mental health.

The varying mediating effects for informal social connectedness may be due to having both alcohol and drug severity in the mediation model. As previously noted the majority of participants who provided data at both time points (46%) indicated they were primarily seeking help for alcohol. It may be that when both substance severities are included in the model, alcohol severity accounts for more of the variance. Additionally, multiple drugs and poly substance use were indicated by our participants, all of which are included in drug severity. It may be that there is variation in the social subcultures, not only between alcohol and drug use, but also within the different drug types. The social connections formed in drug subcultures help provide a frame for one's own social identity and belonging in addition to boundaries for how the subculture group is similar or different to other members or groups in society (Kelly et al., 2015). These drug subcultures provide rules or guidelines related to, for example, patterns or routes of use, obtaining substances, interaction with connections outside the subculture and how to achieve mastery or prestige (Kelly et al., 2015; Moshier et al., 2012). It is possible that the diverse subcultures within drug use are not being captured by the measures utilised in the current study.

4.4.1 Limitations and future directions

The strengths of the current study include the large baseline sample size, assessing individuals who are seeking residential treatment for their substance misuse, and sampling from services across the east coast of Australia. The main limitations of the present study include reduced sample sizes for follow-up periods, use of only faith-based treatment programs, and the primarily male sample (70%). There are many reasons for failing to retain participants at follow-up with the more common being: re-entry into recovery services; not providing consent to be contacted at follow-up; incorrect contact details; and withdrawing consent at follow-up contact. Due to the low follow-up rates we were unable to utilise more sophisticated longitudinal statistical analyses such as hierarchical linear modelling. Future research with greater follow-up rates would provide opportunities to robustly test the

predictive capacities of recovery capital variables for complete mental health. Our attrition analyses suggested alcohol and drug addiction severity, legal issues and age may be different for those who completed all follow-ups and those who did not. The current findings are therefore applicable to samples with more severe alcohol, legal and drug problems and near our obtained mean age. Previous research has identified The Salvation Army residential programs treat individuals with higher drug and alcohol severity compared to American inpatient normative data on the ASI (Deane, Kelly, Crowe, Coulson, & Lyons, 2013). In conjunction with the current follow-up sample having increased drug and alcohol severity, it is possible that the mediating relationships were not found consistently due to substance use severity. Future research would benefit from continued investigations of the mediating relationships in alternate samples. Although we had lower than ideal follow-up rates this likely reflects very few exclusion criteria and the relatively low social and residential stability of the sample. For example, in a test of the effects of exclusion criteria on generalisability it was found that for alcohol cases 43% of cases were excluded from studies due to social instability and for drug cases 50% were excluded due to social instability (Storbjörk, Garfield, & Larner, 2017). Exclusion rates were even higher for comorbid psychiatric medication (69% and 67% respectively). Exclusion criteria such as these indicate that in clinical research "substantial proportions" of those actually engaged in SUDs treatment are excluded (Moberg & Humphreys, 2016).

Future research would benefit from more comprehensive measures of social support networks to assess characteristics of the network as well as broader relational connections. Employment and educational training have been found to be important concerns for individuals at different stages of recovery (Laudet & White, 2010). Even in the context of treatment, if individuals begin work or educational training they achieve levels of QoL similar to that of individuals who had entered treatment with and maintained their employment or enrolment in educational activities (Best et al., 2013). There are a few possible explanations

for this improvement,. For example, it may be that financial rewards provide access to or improve housing, food, or leisure activities (Best et al., 2013). The positive effects of training could also provide intrinsic reward derived from contributing or 'giving back' (Best et al., 2016a; Best et al., 2013). A theory gaining momentum is that bonding social capital (Putnam, 2000) is derived from engagement in work, educational or volunteering activities (Best et al., 2016a). That is, individuals social networks are enhanced by regular contact with people in the network whilst developing a new and valued sense of identity (i.e. a worker) which contributes to improved QoL (Best et al., 2013).

Family connections and support may also be an avenue for future research given that higher levels of contact with one's immediate household, extended family, friends and neighbours has been associated with lower levels of distress (Berry et al., 2007). For some individuals, their family may be the most important social support group (Bradshaw et al., 2016). However, one's substance misuse may have negatively impacted their family, their role in the family and the family dynamics (Wegscheider-Cruse & Cruse, 2012). Promisingly, developing personal recovery from substance misuse can positively impact family functioning and dynamics (Bradshaw et al., 2016). It may be that this return to or development of familial belonging and identity has a powerful impact on complete mental health, a question which warrants investigation

The current findings indicate wider social connection could be a potential target in treatment and aftercare, such as providing or refining skills to speak to neighbours, or increasing the number of abstainers in the social network (Best et al., 2015a; Best et al., 2016a; Best et al., 2015b). Increased length of follow-ups would benefit future predictions of the relationship between social networks (particularly informal social connectedness), substance use and mental health.

Despite limitations, this study offers a unique exploration of mental health and social networks in a drug and alcohol misuse context. It suggests informal engagement, and general support provided by friends, is most related to one's mental health.

CHAPTER FIVE

OVERALL SUMMARY AND FUTURE DIRECTIONS

5.1 SUMMARY OF RESULTS

The series of studies presented in this thesis have examined the mental health of individuals seeking treatment for SUDs, and the recovery capital resources that contribute to their broader recovery. In concordance with the aims of the thesis, these studies have investigated the utility of the MHC (Study 1) and its relationship to community (Study 2) and social (Study 3) engagement . Study 1 described the rates of mental health in 794 individuals seeking treatment from The Salvation Army for SUDs. At entry to treatment there were higher levels of languishing than American population estimates, yet greater levels of flourishing at treatment entry, 3- and 12-month follow-up. Individuals who had remained abstinent at the 3-month follow-up rated their mental health significantly higher than those who had used substances. Model analysis of the temporal link between mental health and substance use indices suggested improved mental health was a consequence of reduced severity of alcohol and other drug use, and followed reductions in cravings. Study 1 provided support for the use of complete mental health in a SUDs context by describing rates of mental health and its relationship to substance use status. While results indicated individuals who went on to abstain post-discharge were more likely to be flourishing (32%) than those who went on to use again (19%) further research was needed to explore additional resources that may bolster flourishing mental health, or protect against moderate or languishing mental health.

The purpose of Study 2 was to investigate the association between community participation and mental health at entry to residential treatment for substance misuse. Specifically, the frequency of engagement for 1815 individuals was investigated and further delineated by mental health category. When combined, participants had lower levels of

community participation compared to Australian community population norms. However, when delineated participants who were experiencing flourishing mental health had significantly higher rates of community participation than Australian norms or those experiencing moderate or languishing mental health. Informal social connectedness and civic engagement were the strongest predictors of mental health over and above more traditional substance use outcomes such as cravings. Study 2 demonstrated the association between community participation, a facet of social capital, and mental health at entry to treatment for SUDs. However, these associations were correlational. Longitudinal research was needed to assess the relationship between community participation and mental health over time. Additionally, investigating social support would broaden the analysis of social capital resources and their relationship with mental health.

The aim of Study 3 was to empirically assess the longitudinal connections between social networks, substance use and mental health. Changes in support from friends and family between treatment entry and 3-months post-discharge were investigated. Greater general social support and informal social connectedness significantly predicted mental health above reduced alcohol use severity. To investigate these relationships further, the mediating effect of substance use severity on the relationship between social support and mental health was analysed. General friendship support had a direct effect on mental health, but this relationship was not mediated by alcohol or drug severity. Friends' support for abstinence did not have a direct relationship with mental health and was not mediated by alcohol or drug severity. In contrast, alcohol severity partially mediated the relationship between informal social connectedness and mental health. The mediation results indicate that general informal societal interaction is associated with reduced alcohol use severity and higher levels of mental health.

5.2 INTEGRATION AND IMPLICATIONS

Complete mental health as conceptualised by Keyes has been proposed as a comprehensive model of subjective wellbeing (2002), is concordant with recent definitions of recovery (SAMHSA, 2011; Schwarzlose et al., 2007) and reflects aspects of an individual's experience during their recovery (Laudet, 2007). The ability to identify frequencies of flourishing, languishing and moderate mental health in the presence or absence of abstinence has demonstrated mental health is likely to be a useful construct in a SUD context (see Study 1). The results from Study 1 suggest flourishing at intake may influence treatment effectiveness, warranting further investigation and replication. These findings indicate there may be scope for treatment providers to assess mental health at any point along an individual's recovery journey. The construct of complete mental health and the associated measure (MHC-SF) are likely to be useful additions to comprehensive assessment of treatment outcomes and recovery in addition to helping best understand the intensity of treatment or intervention required. Mental health and reduced substance use severity almost certainly interact to allow individuals to build on gains in both domains. Further to this, mental health is likely to be related to wider social capital, such that social capital resources support better mental health and improvements in mental health will facilitate increased access to additional sources of social capital. This thesis has provided only a preliminary investigation into some of these relationships by looking at how they interact with traditional drug and alcohol severity outcomes.

Recovery capital variables reflect both an individual's embeddedness in social and cultural life (Granfield & Cloud, 2001) as well as the facets of a fulfilling and self-directed life described in wellness definitions of recovery (SAMHSA, 2011; Schwarzlose et al., 2007). When all individuals who enter treatment are combined, they have lower levels of community participation than Australian population norms (Study 2). If these individuals were able to be identified, opportunities to increase social connectedness and civic engagement could be

facilitated during their treatment. This would initially benefit individuals as they may experience the better mental, physical and general health associated with increased engagement (Berry & Welsh, 2010). These changes would then affect the broader community through the social transmission of the engagement benefits; the hope and support fostered through "giving back" (Best & Gilman, 2010; Best & Laudet, 2010). The individuals who have greater mental health at treatment entry, and therefore higher levels of social connectedness and engagement (Study 2), may be candidates for less intensive forms of treatment, regardless of substance use severity (Granfield & Cloud, 2001). Specifically treatments which address more general informal societal interactions beyond just friends and family (e.g. The Community Reinforcement Approach, Meyers et al., 2011; Meyers et al., 2002) may lead to reductions in substance use and in turn positive flow on effects for mental health (Study 3).

The thesis has provided a unique exploration of the concepts of complete mental health and social capital resources, but future research would benefit from their continued exploration in conjunction with the integration of further recovery capital resources. While continuing to incorporate abstinence as a component of recovery, utilising complete mental health can ensure a comprehensive wellness outcome. Investigating broader recovery capital resources would provide further empirical evidence for the stable personal resources the Broaden and Build theory posits are developed with flourishing mental health (Fredrickson, 2001) while also providing opportunities to test alternative relationships with mental health. In particular the mediation analyses from Chapter 4 could be investigated in models with alternate relationships. That is, with substance use severity mediating the relationship between complete mental health as a predictor and social support variables as outcomes. It may be that reciprocal influence models could provide promise for future research, understanding how increased social and community engagement relates to experiences of complete mental health. Further to the continued investigation of individual level recovery capital resources,

investigations could be expanded to also include more macro levels of the resources. For example, once individuals change their social networks and identities (Best et al., 2016c; Richardson, 2000)to foster successful and continued recovery how are the community- or macro-level recovery capital resources affected. Social capital has been found to be associated with health outcomes and mortality at neighbourhood, regional, state and national levels (Kawachi, Kim, Coutts, & Subramanian, 2004). Additionally, the bridging and linking resources available to communities with increased social capital can lead to benefits such as greater access to services and amenities, effective social control over deviant behaviours (Poortinga, 2006). Substance misuse reduces community resilience (e.g. close network connections, strong community institutions) particularly if the misuse is severe, prolonged and widespread (Evans, Lamb, & White, 2013). While the current results have indicated that individuals experience increased complete mental health when they address their substance misusing, investigating the broader benefits communities attain from this process is warranted (Evans et al., 2013; Poortinga, 2006). In fact, the level of community may only need to be broadened to one's family. While potentially seen as the smallest and basic community group, it is an essential form of social capital (Fukuyama, 1995) which has often been overlooked in previous research (Poortinga, 2006).

The current results provide support for the use of the Broaden and Build theory for future research and clinical interventions. Future investigations of which and how long the recovery capital variables are able to be drawn upon as “reserves” (Fredrickson, 2001) to enhance treatment effects and achieve optimal mental health would be beneficial. Prior research has conceptualised recovery capital resources as length of abstinence, social support, spirituality, life meaning, religiousness, and 12-step involvement as a mediating buffer between stress and QoL (Laudet et al., 2006). With consideration to the current results finding evidence of a consequential relationship between reductions in substance use and mental health, investigating social capital resources as a mediator of the relationship between

substance use severity and mental health is warranted. Additionally, given these promising preliminary findings and the high rates of comorbidity in SUD samples (Mortlock et al., 2011) investigations of mental health can be broadened to also include experiences of mental illness and how they contribute to recovery journeys (Keyes, 2005b; Provencher & Keyes, 2011).

5.3 LIMITATIONS

Limitations of each of the studies have been noted in the discussions of Chapters 2 to 4. Across the studies, the main limitations included relatively low follow-up rates, mostly male participants, use of only faith-based treatment programs and self-report measures. These limitations suggest future research would benefit from addressing some of the reasons encountered for failing to retain participants (e.g. incorrect contact details), using samples with a greater gender balance, including secular comparison groups and utilising objective measures of substance use. As previously discussed, one explanation for the lower than ideal follow-up rates is the very few exclusion criteria and the relatively low social and residential stability of the sample. Additionally the data collection design, utilising clinical staff to recruit participants and research staff to conduct follow-ups, introduces some issues. There is the potential that this design introduced demand characteristics, socially desirable responding or perceived pressure to consent to the research (McCambridge, De Bruin, & Witton, 2012). It is possible, for example, that participants may have over reported their current functioning in order to justify their need for treatment to The Salvation Army staff or under reported their struggles as they may be perceived as socially undesirable (Del Boca & Noll, 2000). Future research ensuring individuals external to the recovery centre staff collect data would be beneficial, however, the current design does not negate the findings presented in the thesis. The current study collected data from multiple states across Australia, given the wide geographical area of collection we did not have the funding to support research staff completing all data collection. It is not an uncommon way of collecting data, for example, the

same design was utilised in the National Treatment Outcome Research Study in the United Kingdom, a large-scale, multisite, prospective follow-up study of drug misuse (Gossop, Marsden, Stewart, & Rolfe, 2000). We attempted to minimise potential problems in the current study by explicitly informing participants at all data collections that the research measures were optional and could be declined or ceased at any time without any retribution or bearing on their treatment or relationship with The Salvation Army and its staff. Some general limitations of this thesis will also be commented on here. While Study 1 offered insight into how mental health relates to recovery from substance misuse, the comparisons were made with American community samples. It is unknown if there are differences in rates of mental health between American and Australian population norms. There is a need for further research to assess Australian community population rates of mental health. Additionally, both the long and short form of the MHC could be utilised to assess differences in variations of mental health diagnoses between the two forms in an Australian sample.

Studies 1 and 3 provided longitudinal investigations of mental health up to 12-months post-treatment discharge. While these designs allowed for temporal investigations of mental health and associations with social capital, they were relatively short follow-up periods. Previous research has identified that within the first 12-months post-discharge, individuals experience significant personal and emotional changes from when they first entered treatment (Dennis et al., 2005; El-Guebaly, 2012; McLellan et al., 2000). Just as the intensity of changes and prioritisation of recovery goals may change during recovery journeys, so too may the frequencies of mental health or participation in social and civic life. Future research utilising Keyes' (2002) conceptualisation of mental health in the SUD context would benefit from longer follow-up periods to investigate the presence of any changes in frequencies, as well as perceived importance to individuals, as a function of time from treatment discharge.

A strength of the current studies is the recruitment of participants seeking residential treatment for their substance misuse from The Salvation Army services across the east coast

of Australia (i.e., multiple services albeit that they follow a similar treatment model). Relative to previous research there are limited investigations with residential treatment seeking samples as compared to general community or outpatient samples (e.g. Cheney et al., 2016; Ding et al., 2015). While participants underwent the same modified therapeutic community treatment programme, the majority of individuals who recover from substance misuse do so without formal help or treatment (i.e. natural recovery; Granfield & Cloud, 1999; Sobell, Cunningham, & Sobell, 1996). Utilising individuals who underwent secular treatments or natural recoveries would provide an opportunity to explore potential differences in mental health frequencies and trajectories over time.

The current studies provide unique explorations of mental health, community participation and social support in individuals seeking treatment for alcohol and other drug misuse. However, these limitations, in addition to others that have been discussed (e.g. majority male samples, attrition), preclude wider generalisation of the current findings. Where appropriate the characteristics of the samples and subsequent restrictions have been described. These discussions demonstrate that the current results provide promise for future research utilising the concepts of complete mental health and social capital resources, in addition to suggesting where broadening the variables for investigation would be useful.

It is hoped future research may provide further opportunities to understand the intensity of intervention required to assist individuals to achieve and sustain flourishing social, emotional and psychological wellbeing. The current results indicate mental health, community participation and engagement with broader social network connections could provide a framework for understanding what and how much support should be maintained or provided to achieve successful recovery. Considering policy and funding investments which focus on fostering a sense of belonging, contribution and engagement may provide a way to achieve wellness in recovery to benefit stakeholders involved in the treatment of SUDs.

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APPENDICES

APPENDIX A

Ethics Application Approval

UNIVERSITY OF WOLLONGONG

APPROVAL after review
In reply please quote: HE12/428
Further Enquiries Phone: 4221 3386

19 February 2013

Professor Frank Deane
Illawarra Institute for Mental Health
Building 22
University of Wollongong

Dear Professor Deane

Thank you for your letter responding to the HREC review letter. I am pleased to advise that the Human Research Ethics application referred to below has been **approved.**

Ethics Number:	HE12/428
Project Title:	Flourishing and recovery from substance use disorders
Name of Researchers:	Professor Frank Deane, Dr Peter Kelly, Ms Breanna McGaffin
Approval Date:	19 February 2013
Expiry Date:	18 February 2014

The University of Wollongong/ISLHD Health and Medical HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research. The HREC has reviewed the research proposal for compliance with the National Statement and approval of this project is conditional upon your continuing compliance with this document.

A condition of approval by the HREC is the submission of a progress report annually and a final report on completion of your project. The progress report template is available at http://www.uow.edu.au/research/rso/ethics/UOW009385.html. This report must be completed, signed by the appropriate Head of School and returned to the Research Services Office prior to the expiry date.

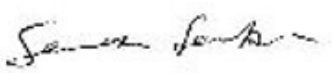
As evidence of continuing compliance, the Human Research Ethics Committee also requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforseen events that might affect continued ethical acceptability of the project.

Please note that approvals are granted for a twelve month period. Further extension will be considered on receipt of a progress report prior to expiry date.

If you have any queries regarding the HREC review process, please contact the Ethics Unit on phone 4221 3386 or email rso-ethics@uow.edu.au.

Yours sincerely



Associate Professor Sarah Ferber
Chair, UOW & ISLHD Health and Medical
Human Research Ethics Committee

Ethics Unit, Research Services Office
University of Wollongong NSW 2522 Australia
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APPENDIX B

Participant Information and Consent Forms

The Salvation Army Program and University of Wollongong Participant Information Sheet

Flourishing in Recovery

Who is doing the study?
Breanna McGaffin is a University of Wollongong student and will be conducting this study as part of her Doctoral thesis. Prof Frank Deane and Dr Peter Kelly will be supervising this research project.

What is the study about?
The purpose of this research is to evaluate the relationship between mental health and recovery from drug and/or alcohol problems. We are interested in assessing resources (such as social support or spirituality) that may improve mental health while beginning and maintaining recovery. Outcomes related to drug and alcohol use will also be assessed.

What do I need to do?

1. Before we can collect any information we firstly need to obtain your consent to be involved in the study. It is important that you carefully read this 'information sheet' and 'consent form' to ensure that you understand what is involved in the research. If you would like further information on the study you can also contact Prof. Deane, Dr. Kelly, or Miss McGaffin at the University of Wollongong by calling 02 4221 4207.

2. To be able to conduct the study, we would like permission to be able to access your clinical records held by the Salvation Army. This will include the assessments you completed when you first arrived at the service and other surveys you may complete as part of your stay (e.g. Depression Anxiety Stress Scale). The information we will use will be your admission and discharge dates, the centre you have attended, your Addiction Severity Index interview at intake, and the contact details you provide.

3. We will also ask you to complete a questionnaire to measure how you are feeling. This questionnaire will involve questions on your drug and/or alcohol use, wellbeing, social support, and spirituality. The questionnaire will be completed when you first enter the service with the support of Salvation Army staff. It is anticipated that completion of the initial questionnaire will take approximately 30 minutes.

4. To understand the effects of the program we will also be contacting you by telephone or mail once you leave. The interviews will occur 3-months and 12-months after you have left the service. The questionnaire will include questions on

your drug and/or alcohol use, wellbeing, social support, and spirituality. The telephone interviews will take approximately 45 minutes to complete. If you agree to complete these follow-up interviews you will receive a $20 gift voucher for each follow-up interview you complete as a way of compensating you for your time.

5. If we are unable to contact you following your discharge from the program, we would like to conduct a brief 2-minute interview with someone who is close to you that might be able to provide this information. This will typically be the person you have specified as your Next of Kin to The Salvation Army staff. You will also be provided with an opportunity to suggest other people (e.g. family, friends, other service providers) who you think might be able to provide information. This will occur when you complete the Addiction Severity Index with the Salvation Army.

6. We would ask your nominated contact person how frequently they are in contact with you and if they have noticed improvements in your substance use, gambling and functioning (e.g. mental and physical health, legal problems). If the person you specified did not want to answer the questions they could simply refuse when contacted by the researchers. We will only be contacting this person if the research team is unable to locate you first using the phone numbers provided. Personal information will not be provided to relatives, friends, or other service providers. However, the person will be informed that you have recently attended a Salvation Army Recovery Service Centre.

Is there any risk or burden if I decide to participate?

The main burden will be related to the time it takes to complete the assessment. There is a very small risk that you might think some of the questions in the questionnaires are too personal. Some of the questions are sensitive, such as: "How much money did you receive from illegal sources in the past 30 days?" or "I felt I wasn't worth much as a person". However, you have the right to refuse to answer any specific questions.

It is not a component of this research to examine your involvement in any serious criminal activities. If you choose to discuss any serious criminal activity you should avoid identifying any specific individuals who may have committed crimes in any way. Serious criminal activity covers offences such as drug trafficking, serious assaults, sexual assaults, child abuse or neglect, murder and manslaughter. For example, if you say that you have trafficable quantities of drugs we are obliged to inform the Police. **As this research is concerned with substance use the researchers will not report your personal drug use to the Salvation Army staff or the Police**.

Even if you agree to participate in the study, you can choose to withdraw from the study and also withdraw the data you provided at a later date. If you choose not to participate in the study, this will in no way have an effect on your relationship with your support or treatment services or the University of Wollongong. **Participation is entirely voluntary**.

Are there any benefits expected?

People often find that when they complete the questionnaires and interview it helps them reflect on their progress and clarify what it is about treatment that is helping them.

Clients will receive a $20 gift certificate upon completion of each follow-up interview.

The study will also help provide suggestions to improve the drug and alcohol services provided by the Salvation Army. In this way you are making a contribution to improving services for other people who use the Bridge program services in the future.

How will my information be collected and used?
When you first enter the Bridge program, staff from the Salvation Army will assist you to complete the initial questionnaire. This will involve answering a series of questions and completing a written survey. Your questionnaire will be sent to the Salvation Army head office in Sydney, information that your case manager can use to support your treatment will be entered into the Salvation Army database. Your name will then be removed from the survey and sent to the University of Wollongong.

To assist with locating you for a follow-up telephone interview when you are discharged from the Bridge program, we will ask for your current contact details.

We will keep your information confidential by using a code number instead of your name when we transfer your information into a database. All questionnaires and interview material will be stored securely at the University of Wollongong. The information may be used for publication in scholarly research journals, reports to the Salvation Army, student theses, and conference presentations. You will not be identifiable in any publications.

What if I have more questions?
You may have additional questions that you wish to ask about the research before you decide whether to participate. You can contact Prof. Deane, Dr Kelly or Miss McGaffin at the University of Wollongong by calling 02 4221 4207. If you have any concerns or complaints regarding the way in which the research is or has been conducted, you can contact the Secretary of the University of Wollongong Human Research Ethics Committee on Phone: (02) 4221 4457, Fax: (02) 4221 4338 email: research@uow.edu.au

The Salvation Army Program and University of Wollongong
Participant Consent Form

Flourishing in Recovery

The researchers are: Prof Frank Deane, Dr Mr Peter Kelly, and Breanna McGaffin.

I have been given information about the study 'Flourishing in Recovery". I have discussed the project with Salvation Army staff and have been offered the opportunity to discuss the research project with researchers (Prof Deane, Dr Kelly, or Miss McGaffin) who are conducting this research in the Illawarra Institute for Mental Health at the University of Wollongong.

I understand that, if I consent to participate in this project I will be asked to:

- Give permission for the researchers to access information from my case file.
- Be contacted by telephone or mail by a research assistant from the University of Wollongong 3-months and 12-months after I leave the Bridge program to complete a follow-up interview.
- Researchers may use the contact details of my Next of Kin, family, friends or other services that I have provided to help locate me. If the researchers are unable to contact me they may complete a brief telephone interview with my Next of Kin or another person I have suggested. They will be asking the person if they have noticed improvements in my substance use, gambling and mental health since leaving the Salvation Army Recovery Service Centre.

I have been advised of the potential risks and burdens associated with this research, which include completion of questionnaires that may contain personal questions, and have been given an opportunity to contact the researchers and ask any questions I may have about the research and my participation.

I understand that my participation in this research is voluntary, I am free to refuse to participate and I am free to withdraw from the research at any time. My refusal to participate or withdrawal of consent will not affect my relationship with the Salvation Army or the University of Wollongong.

If I have any enquiries about the research, I can contact Prof Deane, Dr Kelly, or Miss McGaffin at the University of Wollongong by calling 02 4221 4207. Or if I have any concerns or complaints regarding the way the research is or has been conducted, I can contact an Ethics Officer, Human Research Ethics Committee, Research Services Office, University of Wollongong on Phone: (02) 4221 4457, Fax: (02) 4221 4338, email: rso-ethics@uow.edu.au.

By signing below I am indicating my consent to participate in the research titled 'Flourishing in Recovery' conducted by Prof Deane, Dr Kelly, and Miss McGaffin as it has been described to me in the information sheet and discussed with Salvation Army staff. I understand that the data collected from my participation may be used for journal publications, organisational reports, research theses, and conference presentations, and I consent for it to be used in that manner.

Sign:_____

Name (please print):_____ Date: _____

APPENDIX C

Baseline Questionnaire

Recovery Services
Bridge Program Intake Questionnaire

Date: _____ / _____ / _____
Day / Month / Year

Client File Number (SAMIS Code): _____

Client Name: _____

Interviewer Name: _____

Date of Birth: _____ / _____ / _____
Day / Month / Year

Day _____ in Program

Centre: (circle)

1. Dooralong Transformation Centre			**2. Blue Mountains**	**3. WBH (Sydney)**	
Selah	**Miracle Haven**	**Endeavour**			
4. Moonyah (Brisbane)		**5. Fairhaven (Gold Coast)**	**6. Townsville**	**7. Canberra**	

Are you participating in the research project 'Flourishing in Recovery' *(you would have signed a Consent Form at Admission)***	**Yes**	**No**	**Don't Know**

How to Answer this Questionnaire:

This questionnaire has two parts:

- **Part One** – when you answer these questions, ***think about the month before*** you entered The Salvation Army Bridge Program.
- **Part Two** – when you answer these questions, ***think about how you're feeling now*** since being in The Salvation Army Bridge Program.

These parts are clearly marked and instructions are also provided at the beginning of each set of questions.

Part One - Before Entering the Bridge Program

MHC-SF

The following questions are about how you were feeling in the ***month before you entered the Bridge Program***. Please circle the number that best represents how often you have experienced or felt the following.

In the month before entering the Bridge Program, how often did you feel…	**Never**	**Once or Twice**	**About Once a Week**	**2 or 3 Times a Week**	**Almost Every Day**	**Every Day**
1. Happy	**0**	**1**	**2**	**3**	**4**	**5**
2. Interested in life	**0**	**1**	**2**	**3**	**4**	**5**
3. Satisfied with life	**0**	**1**	**2**	**3**	**4**	**5**
4. That you had something important to contribute to society	**0**	**1**	**2**	**3**	**4**	**5**
5. That you belonged to a community (like a social group, your neighbourhood, your city)	**0**	**1**	**2**	**3**	**4**	**5**
6. That our society is a good place, or is becoming a better place for all people	**0**	**1**	**2**	**3**	**4**	**5**
7. That people are basically good	**0**	**1**	**2**	**3**	**4**	**5**
8. That the way our society works makes sense to you	**0**	**1**	**2**	**3**	**4**	**5**
9. That you liked most parts of your personality	**0**	**1**	**2**	**3**	**4**	**5**
10. Good at managing the responsibilities of your daily life	**0**	**1**	**2**	**3**	**4**	**5**
11. That you had warm and trusting relationships with others	**0**	**1**	**2**	**3**	**4**	**5**
12. That you had experiences that challenged you to grow and become a better person	**0**	**1**	**2**	**3**	**4**	**5**
13. Confident to think or express your own ideas and opinions	**0**	**1**	**2**	**3**	**4**	**5**
14. That your life has a sense of direction or meaning to it	**0**	**1**	**2**	**3**	**4**	**5**

PSS

The questions in this scale ask you about your feelings and thoughts during ***the month before you entered the Bridge Program***. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

In the month before entering the Bridge Program how often have you felt…	**Never**	**Almost Never**	**Some-times**	**Fairly Often**	**Very Often**
1. … that you were unable to control the important things in your life?	**0**	**1**	**2**	**3**	**4**
2. … confident about your ability to handle your personal problems?	**0**	**1**	**2**	**3**	**4**
3. … that things were going your way?	**0**	**1**	**2**	**3**	**4**
4. … difficulties were piling up so high that you could not overcome them?	**0**	**1**	**2**	**3**	**4**

ACPQ-SF

These questions ask how often you saw other people or were involved in different activities in your neighbourhood or community.

Please think about your life in the month before you entered the Bridge Program. Please circle the number below each statement that is closest to your opinion according to the answer code.

Before entering the Bridge Program how often did you…	**Never**	**Rarely**	**Occassion-ally**	**Some times**	**Quite often**	**Very often**
1. Have telephone, email, or mail contact with friends or relatives not living with you	**1**	**2**	**3**	**4**	**5**	**6**
2. Chat with your neighbours	**1**	**2**	**3**	**4**	**5**	**6**
3. Attend events that bring people together such as shows, festivals, sporting events or other community events	**1**	**2**	**3**	**4**	**5**	**6**
4. Make time to attend services at a place of worship or a religious organisation	**1**	**2**	**3**	**4**	**5**	**6**
5. Make time to keep in touch with friends	**1**	**2**	**3**	**4**	**5**	**6**
6. Volunteer your spare time to work with community groups or other non-profit organisations	**1**	**2**	**3**	**4**	**5**	**6**
7. See members of your extended family (or relatives not living with you) in person	**1**	**2**	**3**	**4**	**5**	**6**

MSPSS

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement. ***Please think about your life in the month before you entered the Bridge Program.***

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1. My friends really try to help me	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2. I can count on my friends when things go wrong	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3. I have friends with whom I can share my joys and sorrows	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4. I can talk about my problems with my friends	**1**	**2**	**3**	**4**	**5**	**6**	**7**

FSA

The following questions ask about your interactions with your friends with whom you have frequent contact ***in the month before you entered the Bridge Program.***

For each question, please check the box that best describes ***your interaction with your friends***.

	Never	Seldom	Sometimes	Fairly Often	Often
1. My friends offer advice about quitting drugs or alcohol, without nagging	**0**	**1**	**2**	**3**	**4**
2. My friends continue to help me even when I haven't been able to quit	**0**	**1**	**2**	**3**	**4**
3. I feel comfortable about expressing my difficulties with quitting to my friends	**0**	**1**	**2**	**3**	**4**
4. My friends provide encouragement in dealing with difficult situations related to quitting drugs or alcohol	**0**	**1**	**2**	**3**	**4**
5. My friends offer advice about quitting that sometimes seems like nagging	**0**	**1**	**2**	**3**	**4**
6. My friends are critical about my efforts to quit	**0**	**1**	**2**	**3**	**4**
7. My friends easily give up on me when I am not able to quit	**0**	**1**	**2**	**3**	**4**
8. My friends criticise me when I haven't succeeded at quitting	**0**	**1**	**2**	**3**	**4**

LET

Please answer the following questions about yourself by indicating the extent of your agreement using the scale provided. Be as honest as you can throughout, and try not to let your response to one question influence your response to other questions. There are no right or wrong answers. Please think about how you felt ***in the month before you entered the Bridge Program*** when answering these questions.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. There is not enough purpose in my life	**1**	**2**	**3**	**4**	**5**
2. To me, the things I do are worthwhile	**1**	**2**	**3**	**4**	**5**
3. Most of what I do seems trivial and unimportant to me	**1**	**2**	**3**	**4**	**5**
4. I value my activities a lot	**1**	**2**	**3**	**4**	**5**
5. I don't care very much about the things I do	**1**	**2**	**3**	**4**	**5**
6. I have lots of reasons for living	**1**	**2**	**3**	**4**	**5**

DSES-SF

The following questions deal with possible spiritual experiences. The list that follows includes items you may or may not experience. Please consider how often you directly have this experience, and try to disregard whether you feel you should or should not have these experiences. ***Please think about your life in the month before you entered the Bridge Program.***

A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.

To what extent can you say you experienced the following…	Never or Almost Never	Once in a While	Some Days	Most Days	Every Day	Many Times a Day
1. I feel God's presence	**1**	**2**	**3**	**4**	**5**	**6**
2. I find strength and comfort in my religion	**1**	**2**	**3**	**4**	**5**	**6**
3. I feel deep inner peace or harmony	**1**	**2**	**3**	**4**	**5**	**6**
4. I desire to be closer to or in union with God	**1**	**2**	**3**	**4**	**5**	**6**
5. I feel God's love for me, directly or through others	**1**	**2**	**3**	**4**	**5**	**6**
6. I am spiritually touched by the beauty of creation	**1**	**2**	**3**	**4**	**5**	**6**

FSF

Respond to these three items ***using the 4 point scale*** provided. ***Please think about your life in the month before you entered the Bridge Program.***

A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.

	Never	Seldom	Often	Always or Almost Always
1. I have forgiven myself for things that I have done wrong	**1**	**2**	**3**	**4**
2. I have forgiven those who hurt me	**1**	**2**	**3**	**4**
3. I know that God forgives me	**1**	**2**	**3**	**4**

WHOQOL-8

This set of questions asks how you feel about your quality of life, health or other areas of your life. Please think about your life ***in the last two weeks***. (Circle the appropriate answer).

	Very poor	Poor	Neither poor nor good	Good	Very good
1. How would you rate your quality of life?	**1**	**2**	**3**	**4**	**5**
	Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very satisfied**
2. How satisfied are you with your health?	**1**	**2**	**3**	**4**	**5**
3. How satisfied are you with your ability to perform your daily living activities?	**1**	**2**	**3**	**4**	**5**
4. How satisfied are you with yourself?	**1**	**2**	**3**	**4**	**5**
5. How satisfied are you with your personal relationships?	**1**	**2**	**3**	**4**	**5**
6. How satisfied are you with the conditions of your living place?	**1**	**2**	**3**	**4**	**5**
	Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
7. Do you have enough energy for everyday life?	**1**	**2**	**3**	**4**	**5**
8. Have you enough money to meet your needs?	**1**	**2**	**3**	**4**	**5**

Part Two – Since You've Been in the Bridge Program

CT	
When was the last time you used a substance (**not** tobacco/ cigarettes/ cigars)? *Please provide the date you last used any substance (not tobacco/ cigarettes/ cigars). We are only interested in your most recent substance use, regardless of whether it is your primary substance of use. If you cannot remember exactly, please provide your best estimate.*	_____ / _____ / _____ Day / Month / Year

Smoking

1. How many days in the last 30 have you smoked cigarettes? **_____(days)**

2. On average, how many cigarettes would you smoke each day? **_____(total cigarettes)**

3. Have you used Nicotine Replacement Therapy (NRT) during the last 30 days? (Please tick the box)
This might include patches, gum, sprays, lozenges, inhalers etc.
0 ☐ No 1 ☐ Yes

4. How do you see yourself as a cigarette smoker? (Please tick the box that most applies to you)

1 ☐ I am not ready to stop smoking
2 ☐ I am thinking about stopping
3 ☐ I have decided to stop smoking
4 ☐ I want to stay a non-smoker

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you ***over the past week***. There are no right or wrong answers. Do not spend too much time on any statement.
The rating scale is as follows:
0 Did not apply to me at all - NEVER
1 Applied to me to some degree, or some of the time - SOMETIMES
2 Applied to me to a considerable degree, or a good part of the time – OFTEN
3 Applied to me very much, or most of the time - ALMOST ALWAYS

1. I found it hard to wind down	**0**	**1**	**2**	**3**
2. I was aware of dryness of my mouth	**0**	**1**	**2**	**3**
3. I couldn't seem to experience any positive feeling at all	**0**	**1**	**2**	**3**
4. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	**0**	**1**	**2**	**3**
5. I found it difficult to work up the initiative to do things	**0**	**1**	**2**	**3**

DASS 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you ***over the past week***. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all - NEVER

1 Applied to me to some degree, or some of the time - SOMETIMES

2 Applied to me to a considerable degree, or a good part of the time – OFTEN

3 Applied to me very much, or most of the time - ALMOST ALWAYS

6. I tended to over-react to situations	**0**	**1**	**2**	**3**
7. I experienced trembling (eg, in the hands)	**0**	**1**	**2**	**3**
8. I felt that I was using a lot of nervous energy	**0**	**1**	**2**	**3**
9. I was worried about situations in which I might panic and make a fool of myself	**0**	**1**	**2**	**3**
10. I felt that I had nothing to look forward to	**0**	**1**	**2**	**3**
11. I found myself getting agitated	**0**	**1**	**2**	**3**
12. I found it difficult to relax	**0**	**1**	**2**	**3**
13.I felt down-hearted and blue	**0**	**1**	**2**	**3**
14. I was intolerant of anything that kept me from getting on with what I was doing	**0**	**1**	**2**	**3**
15.I felt I was close to panic	**0**	**1**	**2**	**3**
16.I was unable to become enthusiastic about anything	**0**	**1**	**2**	**3**
17. I felt I wasn't worth much as a person	**0**	**1**	**2**	**3**
18. I felt that I was rather touchy	**0**	**1**	**2**	**3**
19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	**0**	**1**	**2**	**3**
20. I felt scared without any good reason	**0**	**1**	**2**	**3**
21. I felt that life was meaningless	**0**	**1**	**2**	**3**

DAQ

A craving refers to the thoughts and feelings associated with an urge or desire to drink or use drugs. The following questions in this section relate specifically ***to the time since you've been in the Bridge Program***. Please show your agreement with the following statements by circling the number that best suits you.

	Strongly disagree						Strongly agree
1. I want to drink/use drugs so much I can taste it	1	2	3	4	5	6	7
2. My desire to drink/ use drugs now seems overwhelming	1	2	3	4	5	6	7
3. I would do almost anything to have a drink/ take some drugs right now	1	2	3	4	5	6	7
4. I would feel as if all the bad things in my life had disappeared if I drank/used drugs now	1	2	3	4	5	6	7
5. Even major problems in my life would not bother me if I drank/used drugs now	1	2	3	4	5	6	7
6. I would feel less worried about my daily problems if I drank/used drugs now	1	2	3	4	5	6	7

DTCQ

Imagine yourself as you are right now in each of these situations. Indicate on the scale how confident you are that you will be able to resist the urge to ***use your primary drug of choice*** in that situation.

Your Primary drug of choice is: _____

	Not at all confident					Very confident
1. If I were angry at the way things had turned out	0	20	40	60	80	100
2. If I had trouble sleeping	0	20	40	60	80	100
3. If I remembered something good that had happened	0	20	40	60	80	100
4. If I wanted to find out whether I could use _____ occasionally without getting hooked	0	20	40	60	80	100
5. If I unexpectedly found some ____ or happened to see something that reminded me of using ____	0	20	40	60	80	100
6. If other people treated me unfairly or interfered with my plans	0	20	40	60	80	100
7. If I were out with friends and they kept suggesting we go somewhere and use ____	0	20	40	60	80	100
8. If I wanted to celebrate with a friend	0	20	40	60	80	100

STAFF USE ONLY

Mode: ☐ Administered by staff ☐ Self-administered **Data:** ☐ **Entered pages 6, 7, 8 & 9 into SAMIS**

Participating in the research project*: ☐ Yes ☐ No

*You may need to check this in SAMIS

Action: ☐ RPP/WP ☐ MHA/Referral ☐ Other _____

Comments:

Note. Please follow the Client Data Collection, Usage and Management Policy and Procedure.

APPENDIX D

3-Month Follow-Up Questionnaire

Recovery Services
Bridge Program 3-Month Follow-up Questionnaire

Client Name:					
Date of Birth:					
Client File Number (SAMIS):					
Site (circle):	1. Dooralong Transformation Centre	2. Blue Mountains	3. Canberra	4. Brisbane (Moonyah)	5. William Booth (Sydney)
	6. Gold Coast	7. Townsville			
Date of Assessment:					
Date Left Rehab:					

Script:

Hello, could I please talk to XX (person who has completed the Bridge Program). (Confirm that it is that person)

My name is XX and I am a researcher at the University of Wollongong. We are conducting a follow-up study of people who attended a Salvation Army Residential Rehabilitation Program. Would you mind answering a few questions regarding your progress, including your mental health, since you left the program?

If Yes, commence the interview.

If No, go to back page and ask about contact in ~9 months.

How to Answer this Questionnaire:

This questionnaire has two parts:

- **Part One** – when you answer these questions, ***think about how you're feeling now.***
- **Part Two** – when you answer these questions, ***think about the time since you left the Bridge Program.*** (*Could be a month/week etc. Depends on the scale)*

I'll let you know which part we are answering as we go and there are instructions at the start of each set of questions.

Part One – How You're Feeling Now

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you ***over the past week***. There are no right or wrong answers. Do not spend too much time on any statement. (DASS-21)

The rating scale is as follows:

0 Did not apply to me at all - NEVER
1 Applied to me to some degree, or some of the time - SOMETIMES
2 Applied to me to a considerable degree, or a good part of the time – OFTEN
3 Applied to me very much, or most of the time - ALMOST ALWAYS

1. I found it hard to wind down	**0**	**1**	**2**	**3**
2. I was aware of dryness of my mouth	**0**	**1**	**2**	**3**
3. I couldn't seem to experience any positive feeling at all	**0**	**1**	**2**	**3**
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	**0**	**1**	**2**	**3**
5. I found it difficult to work up the initiative to do things	**0**	**1**	**2**	**3**
6. I tended to over-react to situations	**0**	**1**	**2**	**3**
7. I experienced trembling (e.g., in the hands)	**0**	**1**	**2**	**3**
8. I felt that I was using a lot of nervous energy	**0**	**1**	**2**	**3**
9. I was worried about situations in which I might panic and make a fool of myself	**0**	**1**	**2**	**3**
10. I felt that I had nothing to look forward to	**0**	**1**	**2**	**3**
11. I found myself getting agitated	**0**	**1**	**2**	**3**
12. I found it difficult to relax	**0**	**1**	**2**	**3**
13.I felt down-hearted and blue	**0**	**1**	**2**	**3**
14. I was intolerant of anything that kept me from getting on with what I was doing	**0**	**1**	**2**	**3**
15.I felt I was close to panic	**0**	**1**	**2**	**3**
16.I was unable to become enthusiastic about anything	**0**	**1**	**2**	**3**
17. I felt I wasn't worth much as a person	**0**	**1**	**2**	**3**
18. I felt that I was rather touchy	**0**	**1**	**2**	**3**
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	**0**	**1**	**2**	**3**
20. I felt scared without any good reason	**0**	**1**	**2**	**3**
21. I felt that life was meaningless	**0**	**1**	**2**	**3**

A craving refers to the thoughts and feelings associated with an urge or desire to drink or use drugs. The following questions in this section relate specifically ***to how you're feeling now***. Please show your agreement with the following statements by circling the number that best suits you. (DAQ)

	Strongly disagree						Strongly agree
7. I want to drink/use drugs so much I can taste it	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8. My desire to drink/ use drugs now seems overwhelming	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9. I would do almost anything to have a drink/ take some drugs right now	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10. I would feel as if all the bad things in my life had disappeared if I drank/used drugs now	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11. Even major problems in my life would not bother me if I drank/used drugs now	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12. I would feel less worried about my daily problems if I drank/used drugs now	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Imagine yourself as you are right now in each of these situations. Indicate on the scale how confident you are that you will be able to resist the urge to ***use your primary drug of choice*** in that situation. (DTCQ)

Your Primary drug of choice is: _____

	Not at all confident					Very confident
9. If I were angry at the way things had turned out	**0**	**20**	**40**	**60**	**80**	**100**
10. If I had trouble sleeping	**0**	**20**	**40**	**60**	**80**	**100**
11. If I remembered something good that had happened	**0**	**20**	**40**	**60**	**80**	**100**
12. If I wanted to find out whether I could use _____ occasionally without getting hooked	**0**	**20**	**40**	**60**	**80**	**100**
13. If I unexpectedly found some _____ or happened to see something that reminded me of using _____	**0**	**20**	**40**	**60**	**80**	**100**
14. If other people treated me unfairly or interfered with my plans	**0**	**20**	**40**	**60**	**80**	**100**
15. If I were out with friends and they kept suggesting we go somewhere and use _____	**0**	**20**	**40**	**60**	**80**	**100**
16. If I wanted to celebrate with a friend	**0**	**20**	**40**	**60**	**80**	**100**

We're now up to the last questions for Part One. The time period for the next set of questions is a little bit different. These ask about how you think you were doing before treatment, and how you think you're doing after treatment.

Before and After the Bridge Program

When we ask you questions about 'Before the Bridge Program' try to think about the 3-months before you entered the Salvation Army program. When we ask you about 'After the Bridge Program' try to think about the time since you have left the Salvation Army Bridge program. This will be approximately 3 months. (BAR)

Drugs and alcohol

1. To what extent do you feel you had problems with the use of drugs or alcohol prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

2. To what extent do you feel you have had problems with the use of drugs or alcohol since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Gambling

3. To what extent do you feel you had problems with gambling prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

4. To what extent do you feel you have had problems with gambling since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Mental health

5. To what extent do you feel you had mental health problems prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

6. To what extent do you feel you have had mental health problems since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Part Two – Since Leaving the Bridge Program

This second section has questions related to since you've left the Bridge Program.

1. How many AA/NA meetings have you attended since you left the Bridge Program?	_____ *(Enter your best estimate. If you did not attend any meetings, please put 0)*
2. Since you left the Bridge program have the Salvo's put you in touch with any of the following services: *Please tick those that apply, you may choose more than one.*	a) ☐ Health b) ☐ Sports & recreation e.g. hobbies c) ☐ Spiritual d) ☐ Employment e) ☐ Legal f) ☐ Education g) ☐ Counselling h) ☐ Accommodation i) ☐ Other _____ (specify)
3. Since you left the Bridge program have you attended any of the following services: *Please tick those that apply, you may choose more than one.*	a) ☐ Health b) ☐ Sports & recreation e.g. hobbies c) ☐ Spiritual d) ☐ Employment e) ☐ Legal f) ☐ Education g) ☐ Counselling h) ☐ Accommodation i) ☐ Other _____ (specify)

Medical Status	
M6. How many days have you experienced medical problems in the past 30?	☐☐
M7. How troubled or bothered have you been by these medical problems in the past 30 days? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
M8. How important to you now is treatment for these medical problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
Employment/Support Status	
E4. Do you have a valid driver's license?	☐ 0 – No 1 – Yes
E5. Do you have a car available for use? *(Answer No if not valid driver's license)*	☐ 0 – No 1 – Yes
E11. How many days were you paid for working in the past 30? *(include 'under the table' work)*	☐☐
E12 & 17. How much money did you receive from the following sources in the past 30 days?	Employment (net income) ☐☐☐☐ Illegal ☐☐☐☐

Drug/Alcohol Use		
Clean time 1. Have you used substances since leaving the Salvo's? *(if no skip D1-D12)*	☐ 0 – No 1 – Yes	
D1-12. Have you used _____ within the last 30 days? ROA: 1 – oral, 2 – nasal, 3 – smoking, 4 – non IV inject, 5 – IV inject	Past 30 days	ROA
1. Alcohol –any use at all	☐☐	☐
2. Alcohol – to intoxication	☐☐	☐
3. Heroin	☐☐	☐
4. Methadone	☐☐	☐
5. Other opiates/analgesics	☐☐	☐
6. Barbiturates	☐☐	☐
7. Other sedative/tranquiliser	☐☐	☐
8. Cocaine	☐☐	☐
9. Amphetamines	☐☐	☐
10. Cannabis	☐☐	☐
11. Hallucinogens	☐☐	☐
12. Inhalants	☐☐	☐
13. More than one substance per day (incl. Alcohol)	☐☐	
Clean time 2. When was the last time you used [substance]? *From D1-D12, ascertain which substance is the most recent substance to be used and the date that it was last used. If only one substance was indicated in D1-D12, use that substance. If answered no to D1-D12 ask when last substance use was (confirm if it was date of admission)*	_____ / _____ /_____ Day Month Year	
D23.How much would you say you spent during the past 30 days on	Alcohol ☐☐☐☐	
D26. How many days in the past 30 have you experienced alcohol problems:	☐☐	
D28. How troubled or bothered have you been in the past 30 days by these alcohol problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D30. How important to you now is treatment for these alcohol problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D27. How many days in the past 30 have you experienced drug problems:	☐☐	
D29. How troubled or bothered have you been in the past 30 days by these drug problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D31. How important to you now is treatment for these drug problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	

Legal Status	
L24. Are you presently awaiting charges, trial or sentence?	☐ 0 – No 1 – Yes
L27. How many days in the past 30 have you engaged in illegal activities for profit?	☐☐
L28. How serious do you feel your present legal problems are? *(exclude civil problems)* *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
L29. How important to you *now* is counselling or referral for these legal problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
Family/Social Relationships	
F1. Marital status *1 – married 2 – remarried 3 – widowed 4 – separated 5 – divorced 6 – never married*	☐
F3. Are you satisfied with this situation	☐ 0 – No 1 – Indifferent 2 – Yes
Have you had significant periods in which you have experienced serious problems getting along with:	Past 30 days 0 – No 1 – Yes N – no contact
F18. Mother	☐
F19. Father	☐
F20. Brothers/Sisters	☐
F21. Sexual partner/spouse	☐
F22. Children	☐
F23. Other significant family _____	☐
F24. Close friends	☐
F25. Neighbours	☐
F26. Co-workers	☐
F30. How many days in the past 30 have you had serious (family) conflicts:	☐☐
F32. How troubled or bothered have you been in the past 30 days by these: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	Family problems ☐
F34. How important to you now is treatment or counselling for these: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	Family problems ☐

Psychiatric Status	
Have you had a significant period, (that was not a direct result of drug/alcohol use), in which you have:	Past 30 days 0 – No, 1 – Yes
P4. Experienced serious depression	☐
P5. Experienced serious anxiety or tension	☐
P6. Experienced hallucinations	☐
P7. Experienced trouble understanding, concentrating or remembering	☐
P8. Experienced trouble controlling violent behaviour	☐
P9. Experienced serious thoughts of suicide	☐
P10. Attempted suicide	☐
P11. Been prescribed medication for any psychological emotional problem	☐

P12. How many days in the past 30 have you experienced these psychological or emotional problems?	☐☐
P13. How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
P14. How important to you now is treatment for these psychological problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐

5. How many days in the last 30 have you smoked cigarettes? _____**(days)**

6. On average, how many cigarettes would you smoke each day? _____**(total cigarettes)**

7. Have you used Nicotine Replacement Therapy (NRT) during the last 30 days? (Please tick the box)
This might include patches, gum, sprays, lozenges, inhalers etc.

0 ☐ No 1 ☐ Yes

8. How do you see yourself as a cigarette smoker? (Please tick the box that most applies to you)

1 ☐ I am not ready to stop smoking

2 ☐ I am thinking about stopping

3 ☐ I have decided to stop smoking

4 ☐ I want to stay a non-smoker

WHOQOL-8

This set of questions asks how you feel about your quality of life, health or other areas of your life. Please think about your life ***in the past two weeks***. (Circle the appropriate answer).

	Very poor	**Poor**	**Neither poor nor good**	**Good**	**Very good**
9. How would you rate your quality of life?	**1**	**2**	**3**	**4**	**5**
	Very dissatisfied	**Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very satisfied**
10. How satisfied are you with your health?	**1**	**2**	**3**	**4**	**5**
11. How satisfied are you with your ability to perform your daily living activities?	**1**	**2**	**3**	**4**	**5**
12. How satisfied are you with yourself?	**1**	**2**	**3**	**4**	**5**
13. How satisfied are you with your personal relationships?	**1**	**2**	**3**	**4**	**5**
14. How satisfied are you with the conditions of your living place?	**1**	**2**	**3**	**4**	**5**
	Not at all	**A little**	**Moderately**	**Mostly**	**Completely**
15. Do you have enough energy for everyday life?	**1**	**2**	**3**	**4**	**5**
16. Have you enough money to meet your needs?	**1**	**2**	**3**	**4**	**5**

The following questions are about how you were feeling in the ***past month.*** Please circle the number that best represents how often you have experienced or felt the following. (MHC-SF)						
During the past month, how often did you feel…	**Never**	**Once or Twice**	**About Once a Week**	**2 or 3 Times a Week**	**Almost Every Day**	**Every Day**
15. Happy	**0**	**1**	**2**	**3**	**4**	**5**
16. Interested in life	**0**	**1**	**2**	**3**	**4**	**5**
17. Satisfied with life	**0**	**1**	**2**	**3**	**4**	**5**
18. That you had something important to contribute to society	**0**	**1**	**2**	**3**	**4**	**5**
19. That you belonged to a community (like a social group, your neighbourhood, your city)	**0**	**1**	**2**	**3**	**4**	**5**
20. That our society is a good place, or is becoming a better place for all people	**0**	**1**	**2**	**3**	**4**	**5**
21. That people are basically good	**0**	**1**	**2**	**3**	**4**	**5**
22. That the way our society works makes sense to you	**0**	**1**	**2**	**3**	**4**	**5**
23. That you liked most parts of your personality	**0**	**1**	**2**	**3**	**4**	**5**
24. Good at managing the responsibilities of your daily life	**0**	**1**	**2**	**3**	**4**	**5**
25. That you had warm and trusting relationships with others	**0**	**1**	**2**	**3**	**4**	**5**
26. That you had experiences that challenged you to grow and become a better person	**0**	**1**	**2**	**3**	**4**	**5**
27. Confident to think or express your own ideas and opinions	**0**	**1**	**2**	**3**	**4**	**5**
28. That your life has a sense of direction or meaning to it	**0**	**1**	**2**	**3**	**4**	**5**

The questions in this scale ask you about your feelings and thoughts during ***the past month***. In each case, you will be asked to indicate by circling how often you felt or thought a certain way. (PSS)

In the past month how often have you felt…	**Never**	**Almost Never**	**Some-times**	**Fairly Often**	**Very Often**
5. …that you were unable to control the important things in your life?	**0**	**1**	**2**	**3**	**4**
6. …confident about your ability to handle your personal problems?	**0**	**1**	**2**	**3**	**4**
7. …that things were going your way?	**0**	**1**	**2**	**3**	**4**
8. …difficulties were piling up so high that you could not overcome them?	**0**	**1**	**2**	**3**	**4**

These questions ask how often you saw other people or were involved in different activities in your neighbourhood or community. ***Please think about your life in the past month.*** Please circle the number below each statement that is closest to your opinion according to the answer code. (ACPQ)

In the past month how often did you…	**Never**	**Rarely**	**Occas-ionally**	**Some times**	**Quite often**	**Very often**
8. Have telephone, email, or mail contact with friends or relatives not living with you	**1**	**2**	**3**	**4**	**5**	**6**
9. Chat with your neighbours	**1**	**2**	**3**	**4**	**5**	**6**
10. Attend events that bring people together such as shows, festivals, sporting events or other community events	**1**	**2**	**3**	**4**	**5**	**6**
11. Make time to attend services at a place of worship or a religious organisation	**1**	**2**	**3**	**4**	**5**	**6**
12. Make time to keep in touch with friends	**1**	**2**	**3**	**4**	**5**	**6**
13. Volunteer your spare time to work with community groups or other non-profit organisations	**1**	**2**	**3**	**4**	**5**	**6**
14. See members of your extended family (or relatives not living with you) in person	**1**	**2**	**3**	**4**	**5**	**6**

(MSPSS)	The next few questions relate to the general support you get from friends. We are interested in how you feel about the following statements. ***Please think about your life in the past month.***

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
5. My friends really try to help me	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6. I can count on my friends when things go wrong	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7. I have friends with whom I can share my joys and sorrows	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8. I can talk about my problems with my friends	**1**	**2**	**3**	**4**	**5**	**6**	**7**

	These next questions ask in more detail about the specific support your friends provide. The following questions ask about your interactions with your friends with whom you have frequent contact ***in the past month.*** For each question, please check the box that best describes your interaction with your friends. (If the description is not applicable due to participant abstinence, direct them to think hypothetically) . (FSA)

	Never	Seldom	Sometimes	Fairly Often	Often
1. My friends offer advice about quitting drugs or alcohol, without nagging	**0**	**1**	**2**	**3**	**4**
2. My friends continue to help me even when I haven't been able to quit	**0**	**1**	**2**	**3**	**4**
3. I feel comfortable about expressing my difficulties with quitting to my friends	**0**	**1**	**2**	**3**	**4**
4. My friends provide encouragement in dealing with difficult situations related to quitting drugs or alcohol	**0**	**1**	**2**	**3**	**4**
5. My friends offer advice about quitting that sometimes seems like nagging	**0**	**1**	**2**	**3**	**4**
6. My friends are critical about my efforts to quit	**0**	**1**	**2**	**3**	**4**
7. My friends easily give up on me when I am not able to quit	**0**	**1**	**2**	**3**	**4**
8. My friends criticise me when I haven't succeeded at quitting	**0**	**1**	**2**	**3**	**4**

I am going to ask you some questions about the people that have been important to you during the past month. These people may be family members, friends, people from work, or anyone that you see as having had a significant impact on your life, regardless of whether or not you liked them. The people I want to know about are those with whom you've had contact in the past month.
(Direct participant to think hypothetically in completing parts E and G). (IPI)

A) Name *(first name and last initial)*	B) Relationship *Enter code # from interviewer relationship code sheet*	C) Generally supportive of you? *6 = Extremely supportive* *5 = Very supportive* *4 = Supportive* *3 = Somewhat supportive* *2 = Not very supportive* *1 = Not at all supportive*	D) Drinking status *5 = Heavy drinker* *4 = Moderate drinker* *3 = Light drinker* *2 = Abstainer* *1 = Recovering alcoholic* *8 = Don't know*	E) How has this person reacted to your drinking? *5 = Encouraged* *4 = Accepted* *3 = Neutral* *2 = Didn't accept* *1 = Left, or made you leave when you're drinking* *8 = Don't know*	F) Drug use status *5 = Heavy drug user* *4 = Moderate drug user* *3 = Light drug user* *2 = Abstainer* *1 = Recovering drug user* *8 = Don't know*	G) How has this person reacted to your drug use? *5 = Encouraged* *4 = Accepted* *3 = Neutral* *2 = Didn't accept* *1 = Left, or made you leave when you're using* *8 = Don't know*
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Please answer the following questions about yourself by indicating the extent of your agreement using the scale provided. Be as honest as you can throughout, and try not to let your response to one question influence your response to other questions. There are no right or wrong answers. Please think about how you felt ***in the past month*** when answering these questions. (LET)

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
7. There is not enough purpose in my life	**1**	**2**	**3**	**4**	**5**
8. To me, the things I do are worthwhile	**1**	**2**	**3**	**4**	**5**
9. Most of what I do seems trivial and unimportant to me	**1**	**2**	**3**	**4**	**5**
10. I value my activities a lot	**1**	**2**	**3**	**4**	**5**
11. I don't care very much about the things I do	**1**	**2**	**3**	**4**	**5**
12. I have lots of reasons for living	**1**	**2**	**3**	**4**	**5**

The following questions deal with possible spiritual experiences. The list that follows includes items you may or may not experience. Please consider how often you directly have this experience, and try to disregard whether you feel you should or should not have these experiences. ***Please think about your life in the past month.*** (DSES)

A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.

To what extent can you say you experienced the following…	**Never or Almost Never**	**Once in a While**	**Some Days**	**Most Days**	**Every Day**	**Many Times a Day**
7. I feel God's presence	**1**	**2**	**3**	**4**	**5**	**6**
8. I find strength and comfort in my religion	**1**	**2**	**3**	**4**	**5**	**6**
9. I feel deep inner peace or harmony	**1**	**2**	**3**	**4**	**5**	**6**
10. I desire to be closer to or in union with God	**1**	**2**	**3**	**4**	**5**	**6**
11. I feel God's love for me, directly or through others	**1**	**2**	**3**	**4**	**5**	**6**
12. I am spiritually touched by the beauty of creation	**1**	**2**	**3**	**4**	**5**	**6**

Respond to these three items using the 4 point scale provided. ***Please think about your life in the past month.*** *A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.*(FSF)				
	Never	**Seldom**	**Often**	**Always or Almost Always**
4. I have forgiven myself for things that I have done wrong	**1**	**2**	**3**	**4**
5. I have forgiven those who hurt me	**1**	**2**	**3**	**4**
6. I know that God forgives me	**1**	**2**	**3**	**4**

Script

That is the end of our questions. Is there anything else you would to tell us about your progress?

_____

_____

_____

Thank you very much for agreeing to participate in the study.

What address would you like your gift certificate mailed to?

Would you be willing for us to contact you again at some time in the future (around 9 months) to see how you are doing?

Yes / No

If Yes: What is the best telephone number to contact you on? Do you have an email address?

Phone Numbers	Home:	Work:	Mobile:
E-mail			

APPENDIX E

12-Month Follow-Up Questionnaire

Recovery Services
12 Month Follow-up Assessment

PARTICIPANT DETAILS

Client File Number (SAMIS):					
Date of Birth:					
Site (circle):	1. Dooralong Transformation Centre	2. Blue Mountains	3. WBH (Sydney)	4. Brisbane (Moonyah)	5. Fairhaven (Gold Coast)
	6. Townsville	7. Canberra			
Date of Assessment:					
Date Left Rehab:					

Script:

Hello, could I please talk to XX (person who has completed the Bridge Program). (Confirm that it is that person)

My name is XX and I am a researcher at the University of Wollongong. We are conducting a follow-up study of people who attended a Salvation Army Residential Rehabilitation Program. Would you mind answering a few questions regarding your progress, including your mental health, since you left the program?

If Yes, commence the interview.

If No, cease assessment.

How to Answer this Questionnaire:

This questionnaire has two parts:

- **Part One** – when you answer these questions, ***think about the time since you left the Bridge Program.*** (*Could be a month/week etc. Depends on the scale)*
- **Part Two** – when you answer these questions, ***think about how you're feeling now.***

I'll let you know which part we are answering as we go and there are instructions at the start of each set of questions.

Before we begin, according to our records you last attended *(the program)* in *(discharge month and year)*. Is that correct?

This first section has questions asks about how you think you were doing before treatment, and how you think you're doing since treatment.

Before and After the Bridge Program
When we ask you questions about 'Before the Bridge Program' try to think about the 3-months before you entered the Salvation Army program. When we ask you about 'After the Bridge Program' try to think about the time since you have left the Salvation Army Bridge program. This will be approximately 3 months. (BAR)

Drugs and alcohol

7. To what extent do you feel you had problems with the use of drugs or alcohol prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

8. To what extent do you feel you have had problems with the use of drugs or alcohol since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Gambling

9. To what extent do you feel you had problems with gambling prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

10. To what extent do you feel you have had problems with gambling since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Mental health

11. To what extent do you feel you had mental health problems prior to entering the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

12. To what extent do you feel you have had mental health problems since leaving the program?

No problem	Small problem	Moderate problem	Large problem	Very large problem	Unsure
1	2	3	4	5	9

Part One – Since Leaving the Bridge Program

This next section has questions related to since you've left the Bridge Program.

Medical Status	
M6. How many days have you experienced medical problems in the past 30?	☐☐
M7. How troubled or bothered have you been by these medical problems in the past 30 days? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
M8. How important to you now is treatment for these medical problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
Employment/Support Status	
E4. Do you have a valid driver's license?	☐ 0 – No 1 – Yes
E5. Do you have a car available for use? *(Answer No if not valid driver's license)*	☐ 0 – No 1 – Yes
E11. How many days were you paid for working in the past 30? *(include 'under the table' work)*	☐☐
E12 & 17. How much money did you receive from the following sources in the past 30 days?	Employment (net income) ☐☐☐☐ Illegal ☐☐☐☐
Legal Status	
L24. Are you presently awaiting charges, trial or sentence?	☐ 0 – No 1 – Yes
L27. How many days in the past 30 have you engaged in illegal activities for profit?	☐☐
L28. How serious do you feel your present legal problems are? *(exclude civil problems)* *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
L29. How important to you *now* is counselling or referral for these legal problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐

Family/Social Relationships	
F1. Marital status *1 – married 2 – remarried 3 – widowed 4 – separated 5 – divorced 6 – never married*	☐
F3. Are you satisfied with this situation	☐ 0 – No 1 – Indifferent 2 – Yes
Have you had significant periods in which you have experienced serious problems getting along with:	Past 30 days 0 – No 1 – Yes N – no contact
F18. Mother	☐
F19. Father	☐
F20. Brothers/Sisters	☐
F21. Sexual partner/spouse	☐
F22. Children	☐
F23. Other significant family _____	☐
F24. Close friends	☐
F25. Neighbours	☐
F26. Co-workers	☐
F30. How many days in the past 30 have you had serious (family) conflicts:	☐☐
F32. How troubled or bothered have you been in the past 30 days by these: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	Family problems ☐
F34. How important to you now is treatment or counselling for these: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	Family problems ☐
Psychiatric Status	
Have you had a significant period, (that was not a direct result of drug/alcohol use), in which you have:	Past 30 days 0 – No, 1 – Yes
P4. Experienced serious depression	☐
P5. Experienced serious anxiety or tension	☐
P6. Experienced hallucinations	☐
P7. Experienced trouble understanding, concentrating or remembering	☐
P8. Experienced trouble controlling violent behaviour	☐
P9. Experienced serious thoughts of suicide	☐
P10. Attempted suicide	☐
P11. Been prescribed medication for any psychological emotional problem	☐

P12. How many days in the past 30 have you experienced these psychological or emotional problems?	☐☐
P13. How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐
P14. How important to you now is treatment for these psychological problems? *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐

Drug/Alcohol Use		
Clean time 1. Have you used substances since leaving the Salvo's? *(if no skip D1-D12)*	☐ 0 – No 1 – Yes	
D1-12. Have you used _____ within the last 30 days? ROA: 1 – oral, 2 – nasal, 3 – smoking, 4 – non IV inject, 5 – IV inject	Past 30 days	ROA
14. Alcohol –any use at all	☐☐	☐
15. Alcohol – to intoxication	☐☐	☐
16. Heroin	☐☐	☐
17. Methadone	☐☐	☐
18. Other opiates/analgesics	☐☐	☐
19. Barbiturates	☐☐	☐
20. Other sedative/tranquiliser	☐☐	☐
21. Cocaine	☐☐	☐
22. Amphetamines	☐☐	☐
23. Cannabis	☐☐	☐
24. Hallucinogens	☐☐	☐
25. Inhalants	☐☐	☐
26. More than one substance per day (incl. Alcohol)	☐☐	
Clean time 2. When was the last time you used [substance]? *From D1-D12, ascertain which substance is the most recent substance to be used and the date that it was last used. If only one substance was indicated in D1-D12, use that substance. If answered no to D1-D12 ask when last substance use was (confirm if it was date of admission)*	_____ / _____ /_____ Day Month Year	
D23.How much would you say you spent during the past 30 days on	Alcohol ☐☐☐☐	
D26. How many days in the past 30 have you experienced alcohol problems:	☐☐	
D28. How troubled or bothered have you been in the past 30 days by these alcohol problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D30. How important to you now is treatment for these alcohol problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D27. How many days in the past 30 have you experienced drug problems:	☐☐	
D29. How troubled or bothered have you been in the past 30 days by these drug problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	
D31. How important to you now is treatment for these drug problems: *0 – Not at all 1 – Slightly 2 – Moderately 3 – Considerably 4 – Extremely*	☐	

Smoking

Do you smoke cigarettes or other tobacco products? *(If no, skip to the next section – WHOQOL-8)*

9. How many days in the last 30 have you smoked cigarettes?	_____**(days)**
10. On average, how many cigarettes would you smoke each day?	_____**(total cigarettes)**

11. Have you used Nicotine Replacement Therapy (NRT) during the last 30 days? (Please tick the box)
This might include patches, gum, sprays, lozenges, inhalers etc.

0 ☐ No 1 ☐ Yes

12. How soon after waking do you smoke your first cigarette?
3 ☐ Within 5 minutes
2 ☐ 6 to 30 minutes
1 ☐ 31 to 60 minutes
0 ☐ 61 minutes or more

13. How do you see yourself as a cigarette smoker? (Please tick the box that most applies to you)
1 ☐ I am not ready to stop smoking
2 ☐ I am thinking about stopping
3 ☐ I have decided to stop smoking
4 ☐ I want to stay a non-smoker

WHOQOL-8
This set of questions asks how you feel about your quality of life, health or other areas of your life. Please think about your life ***in the past two weeks***.

	Very poor	Poor	Neither poor nor good	Good	Very good
17. How would you rate your quality of life?	1	2	3	4	5

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
18. How satisfied are you with your health?	1	2	3	4	5
19. How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
20. How satisfied are you with yourself?	1	2	3	4	5
21. How satisfied are you with your personal relationships?	1	2	3	4	5
22. How satisfied are you with the conditions of your living place?	1	2	3	4	5

	Not at all	A little	Moderately	Mostly	Completely
23. Do you have enough energy for everyday life?	1	2	3	4	5
24. Have you enough money to meet your needs?	1	2	3	4	5

Mental Health Continuum (MHC)

The following questions are about how you were feeling in the ***past month.*** Please circle the number that best represents how often you have experienced or felt the following.

During the past month, how often did you feel…	Never	Once or Twice	About Once a Week	2 or 3 Times a Week	Almost Every Day	Every Day
29. Happy	**0**	**1**	**2**	**3**	**4**	**5**
30. Interested in life	**0**	**1**	**2**	**3**	**4**	**5**
31. Satisfied with life	**0**	**1**	**2**	**3**	**4**	**5**
32. That you had something important to contribute to society	**0**	**1**	**2**	**3**	**4**	**5**
33. That you belonged to a community (like a social group, your neighbourhood, your city)	**0**	**1**	**2**	**3**	**4**	**5**
34. That our society is a good place, or is becoming a better place for all people	**0**	**1**	**2**	**3**	**4**	**5**
35. That people are basically good	**0**	**1**	**2**	**3**	**4**	**5**
36. That the way our society works makes sense to you	**0**	**1**	**2**	**3**	**4**	**5**
37. That you liked most parts of your personality	**0**	**1**	**2**	**3**	**4**	**5**
38. Good at managing the responsibilities of your daily life	**0**	**1**	**2**	**3**	**4**	**5**
39. That you had warm and trusting relationships with others	**0**	**1**	**2**	**3**	**4**	**5**
40. That you had experiences that challenged you to grow and become a better person	**0**	**1**	**2**	**3**	**4**	**5**
41. Confident to think or express your own ideas and opinions	**0**	**1**	**2**	**3**	**4**	**5**
42. That your life has a sense of direction or meaning to it	**0**	**1**	**2**	**3**	**4**	**5**

Perceived Stress Scale (PSS)

The questions in this scale ask you about your feelings and thoughts during ***the past month***. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

In the past month how often have you felt…	**Never**	**Almost Never**	**Some-times**	**Fairly Often**	**Very Often**
9. …that you were unable to control the important things in your life?	**0**	**1**	**2**	**3**	**4**
10. …confident about your ability to handle your personal problems?	**0**	**1**	**2**	**3**	**4**
11. …that things were going your way?	**0**	**1**	**2**	**3**	**4**
12. …difficulties were piling up so high that you could not overcome them?	**0**	**1**	**2**	**3**	**4**

Australian Community Participation Questionnaire (ACPQ)

These questions ask how often you saw other people or were involved in different activities in your neighbourhood or community. ***Please think about your life in the past month.*** Please circle the number below each statement that is closest to your opinion according to the answer code.

In the past month how often did you…	**Never**	**Rarely**	**Occas-ionally**	**Some times**	**Quite often**	**Very often**
15. Have telephone, email, or mail contact with friends or relatives not living with you	**1**	**2**	**3**	**4**	**5**	**6**
16. Chat with your neighbours	**1**	**2**	**3**	**4**	**5**	**6**
17. Attend events that bring people together such as shows, festivals, sporting events or other community events	**1**	**2**	**3**	**4**	**5**	**6**
18. Make time to attend services at a place of worship or a religious organisation	**1**	**2**	**3**	**4**	**5**	**6**
19. Make time to keep in touch with friends	**1**	**2**	**3**	**4**	**5**	**6**
20. Volunteer your spare time to work with community groups or other non-profit organisations	**1**	**2**	**3**	**4**	**5**	**6**
21. See members of your extended family (or relatives not living with you) in person	**1**	**2**	**3**	**4**	**5**	**6**

Multidimensional Scale of Perceived Social Support (MSPSS)

The next few questions relate to the general support you get from friends. We are interested in how you feel about the following statements. ***Please think about your life in the past month.***

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
9. My friends really try to help me	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10. I can count on my friends when things go wrong	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11. I have friends with whom I can share my joys and sorrows	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12. I can talk about my problems with my friends	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Friends' Support for Abstinence (FSA)

These next questions ask in more detail about the specific support your friends provide. The following questions ask about your interactions with your friends with whom you have frequent contact ***in the past month.*** For each question, please check the box that best describes your interaction with your friends. (If the description is not applicable due to participant abstinence, direct them to think hypothetically).

	Never	Seldom	Sometimes	Fairly Often	Often
9. My friends offer advice about quitting drugs or alcohol, without nagging	**0**	**1**	**2**	**3**	**4**
10. My friends continue to help me even when I haven't been able to quit	**0**	**1**	**2**	**3**	**4**
11. I feel comfortable about expressing my difficulties with quitting to my friends	**0**	**1**	**2**	**3**	**4**
12. My friends provide encouragement in dealing with difficult situations related to quitting drugs or alcohol	**0**	**1**	**2**	**3**	**4**
13. My friends offer advice about quitting that sometimes seems like nagging	**0**	**1**	**2**	**3**	**4**
14. My friends are critical about my efforts to quit	**0**	**1**	**2**	**3**	**4**
15. My friends easily give up on me when I am not able to quit	**0**	**1**	**2**	**3**	**4**
16. My friends criticise me when I haven't succeeded at quitting	**0**	**1**	**2**	**3**	**4**

Important People Interview (IPI)

I am going to ask you some questions about the people that have been important to you during the past month. These people may be family members, friends, people from work, or anyone that you see as having had a significant impact on your life, regardless of whether or not you liked them. The people I want to know about are those with whom you've had contact in the past month.

(Direct participant to think hypothetically in completing parts E and G).

Person number (see 3mth fu)	1= person spontaneously listed 2 = included after a prompt 3 = not included after a prompt	H) Name *(first name and last initial)*	I) Relationship *Enter code # from interviewer relationship code sheet*	J) Generally supportive of you? *6 = Extremely supportive* *5 = Very supportive* *4 = Supportive* *3 = Somewhat supportive* *2 = Not very supportive* *1 = Not at all supportive*	K) Drinking status *5 = Heavy drinker* *4 = Moderate drinker* *3 = Light drinker* *2 = Abstainer* *1 = Recovering alcoholic* *8 = Don't know*	*L)* How has this person reacted to your drinking? *5 = Encouraged* *4 = Accepted* *3 = Neutral* *2 = Didn't accept* *1 = Left, or made you leave when you're drinking* *8 = Don't know*	M) Drug use status *5 = Heavy drug user* *4 = Moderate drug user* *3 = Light drug user* *2 = Abstainer* *1 = Recovering drug user* *8 = Don't know*	N) How has this person reacted to your drug use? *5 = Encouraged* *4 = Accepted* *3 = Neutral* *2 = Didn't accept* *1 = Left, or made you leave when you're using* *8 = Don't know*

Life Engagement Test (LET)

Please answer the following questions about yourself by indicating the extent of your agreement using the scale provided. Be as honest as you can throughout, and try not to let your response to one question influence your response to other questions. There are no right or wrong answers. Please think about how you felt ***in the past month*** when answering these questions.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
13. There is not enough purpose in my life	**1**	**2**	**3**	**4**	**5**
14. To me, the things I do are worthwhile	**1**	**2**	**3**	**4**	**5**
15. Most of what I do seems trivial and unimportant to me	**1**	**2**	**3**	**4**	**5**
16. I value my activities a lot	**1**	**2**	**3**	**4**	**5**
17. I don't care very much about the things I do	**1**	**2**	**3**	**4**	**5**
18. I have lots of reasons for living	**1**	**2**	**3**	**4**	**5**

Daily Spiritual Experiences Scale (DSES)

The following questions deal with possible spiritual experiences. The list that follows includes items you may or may not experience. Please consider how often you directly have this experience, and try to disregard whether you feel you should or should not have these experiences. ***Please think about your life in the past month.***

A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.

To what extent can you say you experienced the following…	Never or Almost Never	Once in a While	Some Days	Most Days	Every Day	Many Times a Day
13. I feel God's presence	**1**	**2**	**3**	**4**	**5**	**6**
14. I find strength and comfort in my religion	**1**	**2**	**3**	**4**	**5**	**6**
15. I feel deep inner peace or harmony	**1**	**2**	**3**	**4**	**5**	**6**
16. I desire to be closer to or in union with God	**1**	**2**	**3**	**4**	**5**	**6**
17. I feel God's love for me, directly or through others	**1**	**2**	**3**	**4**	**5**	**6**
18. I am spiritually touched by the beauty of creation	**1**	**2**	**3**	**4**	**5**	**6**

Forgiveness Short Form (FSF)
Respond to these three items using the 4 point scale provided. ***Please think about your life in the past month.***

A number of items use the word 'God.' If this word is not a comfortable one for you, please use another word that calls to mind the divine, spiritual or holy for you.

	Never	Seldom	Often	Always or Almost Always
7. I have forgiven myself for things that I have done wrong	**1**	**2**	**3**	**4**
8. I have forgiven those who hurt me	**1**	**2**	**3**	**4**
9. I know that God forgives me	**1**	**2**	**3**	**4**

We're now up to the last two sets of questions.

Desires for Alcohol Questionnaire (DAQ)

A craving refers to the thoughts and feelings associated with an urge or desire to drink or use drugs. The following questions in this section relate specifically ***to how you're feeling now***. Please show your agreement with the following statements by circling the number that best suits you.

	Strongly disagree						Strongly agree
13. I want to drink/use drugs so much I can taste it	1	2	3	4	5	6	7
14. My desire to drink/ use drugs now seems overwhelming	1	2	3	4	5	6	7
15. I would do almost anything to have a drink/ take some drugs right now	1	2	3	4	5	6	7
16. I would feel as if all the bad things in my life had disappeared if I drank/used drugs now	1	2	3	4	5	6	7
17. Even major problems in my life would not bother me if I drank/used drugs now	1	2	3	4	5	6	7
18. I would feel less worried about my daily problems if I drank/used drugs now	1	2	3	4	5	6	7

Drug-Taking Confidence Questionnaire (DTCQ)

Imagine yourself as you are right now in each of these situations. Indicate on the scale how confident you are that you will be able to resist the urge to ***use your primary drug of choice*** in that situation.

Your Primary drug of choice is: _____

	Not at all confident					Very confident
17. If I were angry at the way things had turned out	0	20	40	60	80	100
18. If I had trouble sleeping	0	20	40	60	80	100
19. If I remembered something good that had happened	0	20	40	60	80	100
20. If I wanted to find out whether I could use _____ occasionally without getting hooked	0	20	40	60	80	100
21. If I unexpectedly found some _____ or happened to see something that reminded me of using _____	0	20	40	60	80	100
22. If other people treated me unfairly or interfered with my plans	0	20	40	60	80	100
23. If I were out with friends and they kept suggesting we go somewhere and use _____	0	20	40	60	80	100

24. If I wanted to celebrate with a friend	**0**	**20**	**40**	**60**	**80**	**100**

Script

That is the end of our questions. Is there anything else you would to tell us about your progress?

_____

_____

_____

_____

_____

Thank you very much for agreeing to participate in the study.

What address would you like your gift certificate mailed to?

APPENDIX G

Accepted manuscript

Abstract

Purpose: The current study aimed to investigate Keyes' (2007) model of mental health, the presence (flourishing) or absence (languishing) of social, emotional and psychological wellbeing, in the context of drug and alcohol misuse and the frequency and pattern of community participation (engaging in society).

Design and Methodology: Participants were 1815 individuals (70% male) who entered residential substance misuse treatment provided by The Salvation Army. Questionnaires were completed at intake assessments with The Salvation Army staff. The data were compared with population norms of community participation utilising t-tests, while multiple linear regression was used to examine continuous mental health.

Findings: Although participants have lower levels of community participation compared to Australian population norms, those participants who were experiencing flourishing mental health had higher rates of community participation than Australian norms. Keeping in touch with friends and family was the most common form of participation. Informal social connectedness and civic engagement were the strongest predictors of mental health over and above more traditional substance use outcomes such as cravings.

Originality: This is one of the first studies to describe the relationships between community participation, substance use and mental health in participants seeking treatment for substance misuse. Despite having a drug or alcohol addiction requiring treatment, those participants with flourishing mental health have higher levels of community participation than community norms. Further, community participation predicts mental health. This offers promise for interventions that increase community participation but further research using longitudinal designs is needed to replicate and clarify the direction of these relationships.

Introduction

Individuals in recovery from substance use disorders[1] (SUDs) can experience improvements in wider areas of functioning (e.g. engagement in social and civic life) without necessarily abstaining from alcohol or other substances (Best and Laudet, 2010, White, 2007, Laudet, 2008). However, recovery from SUDs has historically been measured with abstinence as the primary criteria (Garbutt et al., 1999, Laudet and White, 2010). In order to broaden what constitutes recovery, quality of life was an initial wellbeing outcome investigated in a SUD context (Donovan et al., 2005, Best et al., 2012). Keyes' model of complete mental health[2] has recently been introduced as a more comprehensive subjective wellbeing outcome (Keyes, 2007). Complete mental health is considered to be the presence of emotional wellbeing in conjunction with high levels of social and psychological functioning (Keyes and Westerhof, 2012). The measure of complete mental health is able to "diagnose" individuals (Provencher and Keyes, 2011) according to three categories of mental health; flourishing, moderately mentally healthy or languishing (Keyes, 2002). To be flourishing in life, individuals must exhibit high levels of emotional wellbeing and positive functioning; in contrast a person who is languishing will exhibit low levels (Keyes, 2002). Individuals who do not meet the criteria for flourishing or languishing are considered moderately mentally healthy (Keyes, 2002). It has been found that all three categories can occur in the presence or absence of mental illness (Keyes, 2002). When investigated in participants who had attended residential drug and alcohol treatment, individuals were represented in all three "diagnoses" whether they were using or abstaining from substances (McGaffin et al., 2015). Such findings have reinforced prior evidence that recovery encompasses more than just abstinence from substances (Laudet and White, 2010, White, 2007). There is now a need to determine what factors contribute to flourishing or protect against languishing (Robitschek and Keyes, 2009). One resource likely to enhance mental

health is the extent to which people are engaging in their communities (Berry et al., 2007, Ding et al., 2015).

Participation in social and civic life are components of social capital. Social capital is a multidisciplinary and multifaceted concept that has often been misused (Farr, 2004, Putnam, 2000, Berry and Rickwood, 2000) but a commonly utilised definition in the health sciences views it as the combination of patterns of community participation and the social cohesion created from the participation (Putnam, 2000). These elements of social capital are considered to be internal and external resources available to individuals (Granfield and Cloud, 1999) along a continuum from positive to negative (Cloud and Granfield, 2008). Positive recovery entails utilising such resources in the initiation and maintenance of recovery (Cloud and Granfield, 2008). Negative capital may be, for example, personal circumstances or behaviours which may maintain substance misuse, impeding the ability to successfully terminate substance misuse (Cloud and Granfield, 2008). Providing specific examples of positive and negative recovery capital can be somewhat difficult. For example, age can potentially be positive or negative for an individual. Adolescents may not have had opportunities to develop interests and experiences outside of substance use (negative), conversely they may have had limited involvement with substance use subculture and have good physical health (positive) (Cloud and Granfield, 2008).

The community participation component of social capital, community participation is considered "what people do" to engage in society (Harpham et al., 2002). Participation has been organised into three broad categories of activity: informal social connectedness (e.g. contact with friends), civic engagement (e.g. volunteering), and political participation (e.g. political protest; Berry and Welsh, 2010, Putnam, 2000, Berry et al., 2007). Worldwide, levels of community participation have been found to have a positive relationship with mental health (Phelan et al., 2000, Skrabski et al., 2003, Ziersch, 2005). In an Australian

community sample, higher levels of community participation were related to better mental, physical and general health (Berry and Welsh, 2010). In an examination of the longitudinal causal relationship, two analyses of community participation and mental health were conducted in an Australian community sample (Ding et al., 2015). Firstly, the three community participation categories were used to predict mental health one year later. The results indicated the strongest predictor of mental health was informal social connectedness. Political participation was the weakest predictor and had an inverse relationship with mental health. Individuals with poor mental health derived less benefit from informal social connectedness and civic engagement, than individuals with greater levels of baseline mental health (Ding et al., 2015). Secondly, mental health was used to predict the three types of participation the following year. The results were consistent with the first analyses, with mental health most strongly predicting informal social connectedness. Based on their findings, it was proposed that strengthening community participation would be a suitable wellbeing intervention, particularly for individuals with compromised mental health (Ding et al., 2015).

The majority of research focussing on the community participation aspect of social capital has focussed on the mental health of people living in the general community (e.g. Ding et al., 2015), but there is a small body of research examining it in individuals living with mental illness (Repper and Perkins, 2003). People with high levels of community participation have reduced experiences of mental illness (De Silva et al., 2005). Despite high comorbidity between substance misuse and mental illness (Mortlock et al., 2011), there is limited research on community participation in samples with SUDs. Consistent with the broadening definition of recovery (Best et al., 2012, Donovan et al., 2005) the previous research indicating community participation impacts mental illness and health suggests it

may be a fruitful variable to better understand in the context of substance misuse (Piedmont, 2004, Redman, 2012).

Social capital is also comprised of social support and SUD research has particularly focused on social support involving friends (Humphreys and Noke, 1997, Groh et al., 2008). Recovery has been found to be more successful when individuals have an increase in abstaining friends in their social network (Litt et al., 2007, Litt et al., 2009, Trocchio et al., 2013, Longabaugh et al., 2010), and when those friends provide support for abstinence (Beattie and Longabaugh, 1997, Tracy et al., 2016, Dobkin et al., 2002, Bond et al., 2003, Zywiak et al., 2009). Potential mechanisms for these relationships may involve less pressure from supportive friends to drink or use drugs and greater confidence in users to refuse substances. The impact of social support on alcohol and other drug outcomes has been previously investigated, but its impact on mental health in SUD samples remains relatively underexplored (Hillios and Lubben, 2014).

The current research seeks to describe the patterns and frequency of community participation amongst individuals prior to accessing treatment for alcohol and other substance addictions. Given findings suggesting lower social network ties amongst those with substance misuse problems (e.g. Mowbray et al., 2014) it was hypothesised that there would be lower levels of community participation in a sample of individuals entering treatment for substance misuse, compared to the levels identified in a general community sample (Berry and Welsh, 2010). However, to further investigate the patterns of community participation for individuals prior to entering substance misuse treatment the categorical scoring of the MHC-SF was utilised (detail in methods). It was hypothesised that individuals who describe flourishing mental health would report higher levels of community participation than those who were languishing or experiencing moderate mental health. While previous research has utilised social support and more traditional drug and alcohol outcome measures (cravings, drug

refusal self-efficacy) in isolation, the current research aimed to concurrently explore their relationship with community engagement and mental health. Utilising the continuous scoring of the MHC-SF (summing of responses), the current research also aimed to investigate which of these variables (gender cravings, drug refusal self-efficacy, friends general social support, informal social connectedness, civic engagement) would explain the most variance when predicting mental health. It was hypothesised social support and community participation would be the strongest predictors of mental health.

Methods

All measures, forms and procedures were approved by the University Human Research Ethics Committee (HE12/428).

Participants

Participants were 1815 individuals who entered treatment between August 2013 and February 2016 at one of seven of The Salvation Army Recovery Service Centres located in the Australian states of New South Wales, Queensland and the Australian Capital Territory. These centres provide a 10 month residential alcohol and other substance misuse treatment in the form of a modified therapeutic community. This program involves skills training, psycho-education, 12-step based interventions, and individual case management and counselling. Further information regarding the program can be found elsewhere (Deane et al., 2014, Maffina et al., 2013). Funding for the program is based on 30% government funding, 30% Salvation Army funding, 30% client contribution (often welfare benefits), and 10% other donations made to The Salvation Army. Individuals can either be referred to the program, or self-refer. Participants were eligible for the study if they: a) provided consent b) were enrolled within August 2013 and February 2016 and; c) completed an intake assessment.

Approximately 3580 individuals entered treatment over the study period, with 1815 (50.70%) meeting the study criteria.

Community participation population norms were taken from Berry and Welsh (2010). These norms were based on responses from 11,709 individuals (5462 males, 6247 females) who completed the Wave 6 self-completed questionnaire of the Household, Income and Labour Dynamics in Australia (HILDA) Survey (Wooden et al., 2002). Potential participant households were identified through census data. Individuals who wished to participate completed interviews and were left with the self-complete questionnaire for later pickup by the data collection team. Data collection for the HILDA study began in 2001 and has continued annually. For more information on the HILDA study readers are directed to Wooden et al (2002), and for participant demographics see Berry and Welsh (2010).

Demographics. The sample included 1270 males, and 545 females, who had an average age of 36.75 years (SD = 10.46, range: 18-74). Participants' demographic information is reported in Table 1.

[INSERT TABLE 1 HERE]

Measures

Australian Community Participation Questionnaire. Community participation was measured with a 7 item measure derived from a 12 item Australian Community Participation Questionnaire-Short Form (ACPQ; Ding et al., 2015). Three superordinate domains of participation are captured with the ACPQ (Berry et al., 2007). Informal social connectedness involves contact with family, friends, neighbours and workmates. Civic engagement involves organised aspects of community life which can be community, church or work based. As political participation has demonstrated the weakest relationship with mental health (Ding et

al., 2015), only the informal social connectedness and civic participation subscales were utilised. Cronbach's alpha for the informal social connectedness (α = .76) and civic engagement (α = .71) subscales, as well as the full scale, in the current sample was satisfactory (α = .81).

Mental Health Continuum – Short Form. The Mental Health Continuum – Short Form (MHC-SF) is a 14 item self-report questionnaire that assesses positive mental health (Keyes, 2002). Participants rate the frequency of each feeling in the past month on a 6 point Likert scale (0 = never to 5 = every day). Three items form the Emotional Wellbeing subscale which assesses positive emotions towards one's life ("Satisfied with life"), 5 items form the Social Wellbeing subscale ("That you had something important to contribute to society") and six items form the Psychological Wellbeing subscale ("That you liked most parts of your personality") which assesses engagement and functioning in one's social and private life. Only the full scale score was utilised. Cronbach's alpha in the current sample was satisfactory (α = .93).

The scale can be scored both continuously and categorically (Keyes, 2009). Continuous scoring is the sum of responses to the 14 items, with higher scores indicating better mental health. Categorical scoring results in what Keyes refers to as "diagnoses" of flourishing, languishing or moderate mental health (Keyes, 2002). To be flourishing, individuals must respond 'every day' or 'almost every day' to at least one of the three emotional wellbeing items, and at least six of the 11 social and psychological wellbeing items. To be languishing, individuals will respond 'never' or 'once or twice' to at least one emotional wellbeing item and six social and psychological wellbeing items. Individuals who are neither flourishing nor languishing are diagnosed with moderate mental health. Both scoring methods are utilised in the current research.

Friends' Support for Abstinence. Specific recovery support was measured with an 8 item adaptation (Humphreys and Noke, 1997) of the Social Network Social Influence Scale (Collins et al., 1990). Participants responded on a 5 point Likert scale (0 = never to 4 = often) to assess the support friends provide when trying to cease using substances. Cronbach's alpha in the current sample was satisfactory (α = .78).

Multidimensional Scale of Perceived Social Support. General social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, 1988). The MSPSS is a 12 item scale of which the 4 items pertaining to support from friends was utilised. Participants were asked to rate their agreement on a 7 point Likert scale (1 = very strongly disagree to 7 = very strongly agree). Cronbach's alpha for the scale in the current sample was satisfactory (α = .93).

Desires for Alcohol Questionnaire. The abbreviated 6 item Desires for Alcohol Questionnaire (DAQ) was used to assess the participant's *current* desire for alcohol (Mo, Deane, Lyons, & Kelly, 2013). A measure of cravings was utilised as it is a central element of substance dependence and relapse (Baker et al., 2004). Participants indicated their agreement to the statements on a 7 point Likert scale (1 = strongly disagree to 7 = strongly agree). Items were modified for the study to assess drug *and* alcohol desires. For example, the statement "I want to drink so much I can taste it" was adjusted to "I want to drink/use drugs so much I can taste it". Cronbach's alpha for the scale in the current sample was satisfactory (α = .89).

Drug Taking Confidence Questionnaire. The Drug Taking Confidence Questionnaire (DTCQ) is an 8 item scale assessing a person's self-efficacy to resist the urge to drink alcohol or take drugs in specific high relapse risk situations (Sklar & Turner, 1999). This measure was utilised to help assess levels of confidence in users to refuse substances since entering

rehabilitation. Participants were asked to specify their primary drug of choice then rate their confidence of resisting that drug in each situation on a scale of 0 (not at all confident) to 100 (very confident). Cronbach's alpha for the scale in the current sample was satisfactory (α = .92).

Procedures

The Salvation Army staff (centre managers and clinical employees) were trained in the administration of all outcome measures used in the study by the research team. These measures were integrated into intake protocols and each client was provided a consent form and information relating to the aims, procedures and demands of the research. Those clients wishing to participate completed all measures during an intake session with a staff member from The Salvation Army. Participants were informed they could refuse to answer questions or withdraw from the research at any time. Clinically relevant intake data was entered by The Salvation Army staff into the Salvation Army's online Service and Mission Information System (SAMIS). Forms were then forwarded to the research team.

Data analytic strategy

Visual inspection of the variables' distributions (Tabachnick and Fidell, 2007) showed normality violations. Transformations were unable to correct the normality violations so non-parametric equivalents were adopted as required. Prevalence of categorical MHC-SF diagnoses (flourishing, languishing and moderately mentally healthy) were identified for the current sample. Community participation means and standard deviations for the current sample, and according to MHC-SF diagnosis category, were utilised for comparisons with population norms. To investigate statistical differences between the norms and the current total, flourishing, moderately mentally healthy and languishing samples, a series of t-tests were conducted on the two community participation subscales (informal social connectedness

and civic engagement). To control for the eight comparisons (norms with the current total and mental health category samples for both informal social connectedness and civic engagement) between the samples a Bonferroni adjusted α of .006 was utilised. Spearman's Rho bivariate associations were used to determine the relationships between the community participation subscales, mental health (continuous scoring), friends' support and substance specific measures. A multiple linear regression with four blocks was used to examine the influence community participation, friends' support and substance use specific variables have on mental health. To control for participant characteristics gender, age and primary drug of choice were entered into Block 1. Primary drug of choice was recoded to reflect two categories: (1) alcohol or (2) other. Substance related measures (cravings, refusal self-confidence) were entered into Block 2, social support (friends' general and specific support) was entered into Block 3, and community participation (informal social connectedness, civic engagement) was entered into Block 4.

Results

Mental health prevalence

All three mental health diagnoses were present in the current sample. The majority of participants were moderately mentally healthy (51.7%, $n = 930$) or languishing (37.4%, $n = 674$). The remaining 198 participants indicated they were experiencing flourishing mental health (10.9%).

Community participation

Table 2 provides community participation averages for the current sample, and delineated by MHC-SF diagnosis. In addition, Australian population norms (Berry and Welsh, 2010) are also presented. When compared to the general population (Berry and

Welsh, 2010) all participation activities were lower for the total sample, with the exception of volunteer activities. Keeping in touch with friends and family was the most common form of participation, while voluntary sector activity was the least common. Independent t-tests identified there were significant differences between the population and current total sample averages for informal social connectedness (t (13,471) = 46.32, $p < .0001$), and civic engagement (t (13,471) = 32.19, $p < .0001$).

[INSERT TABLE 2 HERE]

Community participation averages were also investigated based on MHC-SF diagnoses. For informal social connectedness, individuals who were flourishing had significantly higher participation than Australian population norms (t (11,899) = 4.22, $p<.0001$), while individuals experiencing moderate mental health (t (12,607) = 29.28, $p<.0001$) and languishing (t (12,369) = 49.75, $p<.0001$) had significantly lower participation. For civic engagement, flourishing individuals had significantly higher participation averages than Australian population norms (t (11,899) = 7.52, $p<.0001$), and moderately mentally healthy (t (12,607) = 19.84, $p<.0001$) and languishing (t (12,369) = 37.11, p<.0001) individuals had significantly lower averages. Regardless of mental health diagnoses, contact with friends and family was the most common activity, while voluntary sector activity was the least common.

Correlations between mental health with community participation, friendship and clinical measures

Spearman correlations were run to assess the bivariate associations between community participation, mental health, friends' support, cravings and refusal self-confidence (Table 3). The informal social connectedness and civic engagement subscales positively correlate with the MHC-SF full scale ($r_s = .56$, p<.01, two tailed, N = 1706, and $r_s = .56$, p<.01, two tailed, N = 1706, respectively). The full scale of community participation positively correlated with

mental health, specific friendship support for abstinence, general social support and refusal self-confidence, and negatively correlated with cravings for drugs and alcohol. Mental health was strongly positively correlated with community participation, friends support for abstinence and general support, and had small but significant correlations with cravings and refusal self-confidence.

[INSERT TABLE 3 HERE]

Factors associated with mental health

Multiple linear regression was utilised to predict continuous mental health. The full model was significant, accounting for 44.7% of the variance in continuous mental health (Table 4). In Step 4, gender, cravings, drug refusal self-efficacy, friends general social support, informal social connectedness and civic engagement were significant predictors ($F(9,1579) = 143.78$, $p < .001$). Males had higher mental health than females (t (1026) = -3.01, $p < .05$).

[INSERT TABLE 4 HERE]

Discussion

The study examined community participation and its relationship to mental health in the context of drug and alcohol misuse. As hypothesised, the current total sample had significantly lower levels of community participation than Australian community population norms. In contrast the analyses regarding mental health diagnoses revealed that individuals who were flourishing prior to entering treatment had higher levels of community participation than the general Australian population. This suggests that despite the presence of problematic substance misuse warranting residential treatment, individuals can experience high levels of emotional wellbeing and functioning, which in turn is related to higher levels of community

connectedness and engagement. While this may appear counterintuitive for individuals entering residential rehabilitation, Keyes' model of complete mental health demonstrated all three mental health categories can occur in the presence or absence of mental illness (2005b). This was also demonstrated in the context of SUDs (McGaffin et al., 2015). Historically one aspect of this has been captured by the concept of the "dry drunk", a person abstaining from substances but experiencing the emotional and functional problems encountered during their addiction (Flaherty et al., 1955, Gogek, 1994). More recently it has been suggested that positive social capital (such as the current findings of flourishing mental health and high levels of community participation) independent of the intensity of substance misuse, may indicate candidates for less intensive forms of treatment (Granfield and Cloud, 2001). The correlations in the current study demonstrated moderate significant relationships in the expected directions.

Almost 90% of the current sample was experiencing languishing or moderate mental health. Unlike those considered to be flourishing, these individuals had significantly lower levels of community participation than Australian population norms. When examining confidence intervals for the mental health diagnoses, there was a trend for languishing individuals to have lower levels of community participation than individuals experiencing moderate mental health. Individuals with moderate or languishing mental health are not experiencing the range of personal and societal health benefits associated with flourishing mental health (Keyes, 2005a, Keyes, 2007), nor the benefits of higher levels of community participation, such as fostering a sense of citizenship, and creating or renewing relationships (White et al., 2006). This limits experiences that could provide individuals, and theoretically the current participants, with access to social capital (Cheney et al., 2016) and resources to initiate and maintain recovery (Granfield and Cloud, 2001). The variability in levels of community participation in the current study across mental health diagnoses suggest, with

further investigation, the engagement of clients and their mental health may be identified at treatment entry to facilitate targeting social connectedness and civic engagement in treatment (Ding et al., 2015).

A regression analysis was used to examine the predictors of participant's scores on the MHC-SF. The full model predicted 44% of the variance in continuous mental health. As hypothesised, social support from friends and community participation variables improved the overall fit of the model, above and beyond more traditional substance use outcomes. The friendship variables acted consistently with previous research, with general support promoting mental health, while specific support is tied to substance use outcomes and was not significant in predicting mental health (Beattie and Longabaugh, 1997). Gender was also a significant predictor, with women having poorer mental health. This difference in mental health may reflect that women have been found to have higher levels of mental illness (Henderson et al., 2000), but is also consistent with prior complete mental health research (with the long form of the MHC) indicating women had poorer mental health than men (Keyes, 2002). Social factors such as being carers, having lower levels of pay, willingness to acknowledge health issues, and objectification contribute to women being at greater risk of experiencing poor mental health or mental illness (Fredrickson et al., 2011, Fredrickson and Roberts, 1997, Pavalko and Woodbury, 2000). Although both forms of the Mental Health Continuum have demonstrated adequate validity and reliability (Keyes, 2002, Ryff and Keyes, 1995), it is unclear whether they might result in variations of estimates. The two strongest predictors were the community participation variables, with both informal social connectedness and civic engagement accounting for an additional 24% of the prediction of mental health. These results align with drug and alcohol treatment approaches that promote friends' general social support, such as in Network Therapy (Galanter, 2014), and community participation (e.g. The Community Reinforcement Approach; Meyers et al., 2002, Best et al.,

2016b). Given the wide range of support services provided by The Salvation Army it may be that they are well placed to facilitate growth in participants' social networks and activities that promote civic engagement through spiritual affiliations or volunteering (Meyers et al., 2002). However, there is a need for further research to determine the potential of such interventions.

Limitations and future directions

The strengths of the current study include the large sample size, assessing individuals who are seeking residential treatment for their substance misuse, and sampling from services across the east coast of Australia. The main limitation of the present study was the cross sectional design meaning causality between the variables could not be established. Future research would benefit from longitudinal investigations of the relationship of mental health and community participation. In particular, determining whether improvements in community participation contribute to reduction in alcohol and other drug problems and a subsequent improvement in mental health.

Other limitations include the use of only faith-based treatment programmes and a primarily male sample (70%). In Australia, there is a significantly higher proportion of males accessing residential treatment services compared to females (Henderson et al., 2000, Australian Institute of Health and Welfare (AIHW), 2004) and this may reflect overall rates of SUDs but also a male oriented treatment system potentially reducing female participation in substance use treatments (Westermeyer and Boedicker, 2000). Additionally, child care demands may limit or delay women entering residential treatment (Green, 2006), potentially contributing to higher severity of addiction, poorer mental health, and limiting social and civic participation. Further research to elucidate the relationship of gender with mental health and community participation variables is required. These limitations restrict the generalisability of the current findings beyond the current sample. Future research would

benefit from utilising balanced gender and secular and non-secular treatment comparison groups.

Given that informal social connectedness has been shown to most strongly predict mental health (Ding et al., 2015), and individuals who were flourishing were more likely to be in contact with friends than any other group, it is likely social networks are an important resource for investigation (Kumar et al., 2016). The social connection of community participation could be a potential target in treatment and aftercare, such as providing or refining skills to speak to neighbours, or increasing the number of abstainers in the social network (Best et al., 2016a, Best et al., 2015a, Best et al., 2015b). In addition, while there is research indicating the impact of social relationships on achieving abstinence in individuals recovering from drug and alcohol misuse (Best et al., 2016a, Brown, 2015, Trocchio et al., 2013, Tracy et al., 2016), there is a dearth of investigations relating to mental health outcomes.

At an individual level the current results provide additional support for treatments which address individuals social and community resources in conjunction with substance misuse (Meyers et al., 2002, Best et al., 2016b, Galanter, 2014). However, there is evidence for the social transmission of (social) capital resources indicating we need not think of it as exclusive to individuals (Best and Laudet, 2010). "Collective recovery capital" is proposed to be generated through engagement in the local community beyond substance misuse or recovery activities (Best and Gilman, 2010). In other words, hope and support is provided to individuals who misuse substances and may think recovery is not possible, or who may be just starting their journey, and it has been argued the broader local community is enriched by witnessing and benefitting from individuals in recovery 'giving back' (Best and Gilman, 2010, Best and Laudet, 2010). Through future policy and funding investment in community recovery groups, there may be a natural magnification of access and accumulation of

improvements in wider areas of functioning for individuals in recovery for SUDs (Best and Laudet, 2010, White, 2007, Laudet, 2008).

Despite limitations, this study offers a unique exploration of mental health and community participation in a drug and alcohol misuse context. While the relationship between mental health and community participation has been investigated previously, this is one of the first studies to delineate frequencies by mental health diagnoses.

[1] The terms substance use disorders and substance misuse in this article refers to the use of one or more substances leading to clinically significant impairment or distress as proposed in the Diagnostic and Statistical Manual of Mental Disorders (DSM)(American Psychiatric Association, 2013).

[2] Mental health and mental illness are used throughout this article to refer to two distinct constructs. Mental health refers to the model of Complete Mental Health proposed by Keyes (2007), encompassing social, emotional, and psychological wellbeing. Mental illness refers to disorders affecting mood, thinking and behaviour as classified by the DSM (2013). Readers are directed to Keyes (2002) and Provencher and Keyes (2011) for further information regarding the theoretical and practical guides to positive mental health diagnoses.

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Table 1. *Demographic Information*.

Characteristics	*n*	Valid %	*M*	*SD*
Gender				
Male	1270	70.0		
Female	545	30.0		
Age			36.75	10.46
Employment status past 30 days				
Not in paid work	818	88.6		
In paid work	105	11.4	15.74	10.00
Government income support past 30 days				
Income support	611	63.5		
No income support	351	36.5		
Education				
Primary	10	01.5		
Lower secondary (Years 7-9)	219	23.0		
Upper secondary (Years 10-12)	600	63.0		
Post-secondary	125	12.5		
Days in treatment			3.04	7.38
Self-reported Primary Substance				
Alcohol	655	40.1		
Methamphetamines	438	26.8		

Polysubstance	269	16.5
Cannabis	166	10.2
Heroin and other opiates	86	5.3
Other	18	1.1

N = 1815

Note: Participants sometimes indicated multiple drugs (including alcohol) as their primary drug of choice, these responses were grouped together to form a polysubstance category.

Table 2. *Community participation means (M), standard deviations (SD), confidence intervals (CI) and between group t-tests for Australian community population, total, and mental health diagnoses samples.*

			Current study sample							
	Berry		Total		Flourishing		Moderately Mentally Healthy		Languishing	
	(n = 11,709)		(n = 1,754)		(n = 192)		(n = 900)		(n = 662)	
	M	SD	M	95% CI	M	95% CI	M	95% CI	M	95% CI
Informal Social Connectedness	3.96	.81	2.94**	(2.89, 3.00)	4.21**	(4.05, 4.36)	3.12**	(3.05, 3.19)	2.34**	(2.27, 2.41)
Telephone, email, or mail contact with friends and family	4.32	.97	3.65	(3.58, 3.72)	4.71	(4.52, 4.89)	3.86	(3.76, 3.95)	3.06	(2.95, 3.18)
Chat with neighbours	3.47	1.33	2.56	(2.49, 2.64)	3.97	(3.75, 4.20)	2.71	(2.61, 2.81)	1.96	(1.86, 2.05)
Make time to keep in touch with friends	4.30	1.14	3.07	(3.00, 3.14)	4.36	(4.16, 4.57)	3.29	(3.20, 3.39)	2.40	(2.30, 2.49)

See members of extended family	3.76	1.33	2.48	(2.42, 2.55)	3.78	(3.55, 4.00)	2.62	(2.52, 2.71)	1.94	(1.86, 2.03)
Civic Engagement	2.63	.85	1.91**	(1.86, 1.96)	3.10**	(2.91, 3.28)	2.04**	(1.98, 2.10)	1.39**	(1.34, 1.43)
Organised community activities	2.47	.97	2.25	(2.18, 2.31)	3.82	(3.60, 4.04)	2.41	(2.32, 2.50)	1.58	(1.51, 1.64)
Religious observance	2.17	1.60	1.84	(1.78, 1.91)	2.85	(2.60, 3.09)	1.97	(1.88, 2.06)	1.36	(1.30, 1.43)
Voluntary sector activity	1.62	.80	1.64	(1.59, 1.70)	2.62	(2.39, 2.85)	1.74	(1.66, 1.82)	1.21	(1.16, 1.26)

**$p<.01$

Note: Comparisons for the two subscales (informal social connectedness and civic engagement) were only conducted between the Berry mean and the total, flourishing, moderately mentally healthy and languishing categories.

Table 3. *Spearman's correlations between community participation, continuous mental health and friends support and clinical measures.*

	1	2	3	4	5	6
1. Informal social connectedness						
2. Civic engagement	.51*					
3. Mental health	.56*	.56*				
4. Friends' support for abstinence	.37*	.18*	.29*			
5. Friends' general social support[a]	.48*	.28*	.38*	.61*		
6. Cravings[b]	-.11*	-.12*	-.22*	-.15*	-.12*	
7. Substance refusal confidence[c]	.15*	.10*	.18*	.13*	-.15*	-.32*

*$p<0.01$; N = 1706; [a]Multidimensional Scale of Perceived Social Support, [b]Desire for Alcohol Questionnaire, [c]Drug Taking Confidence Questionnaire

Table 4. *Multiple linear regression predicting continuous mental health.*

				95% CI	
	b	*SE b*	*β*	Lower	Upper
Step One					
Primary drug of choice	-0.10	0.09	-.04	-0.27	0.07
Gender	0.30	0.09	.09**	0.13	0.46
Age	0.01	0.01	.01	-0.01	0.01
Step Two					
Primary drug of choice	-0.05	0.09	-.02	-0.22	0.12
Gender	0.29	0.08	.09**	0.13	0.45
Age	-0.01	0.01	-.03	-0.01	0.01
Cravings[a]	-0.03	0.01	-.20**	-0.04	-0.03
Substance refusal confidence[b]	0.01	0.01	.13**	0.01	0.01
Step Three					
Primary drug of choice	0.02	0.08	.01	-0.18	0.13
Gender	0.36	0.08	.11**	0.21	0.51
Age	-0.01	0.01	-.04	-0.01	0.01
Cravings[a]	-0.03	0.01	-.17**	-0.04	-0.02
Substance refusal confidence[b]	0.01	0.01	.08*	0.01	0.01
Friends' support for abstinence	0.03	0.01	.10**	0.01	0.04
Friends' general social support[c]	0.07	0.01	.31**	0.05	0.08
Step Four					
Primary drug of choice	-0.09	0.07	-.03	-0.22	0.04
Gender	0.31	0.06	.10**	0.18	0.43
Age	-0.01	0.01	-.04	-0.01	0.01

Cravings[a]	-0.02	0.01	-.12**	-0.03	-0.02
Substance refusal confidence[b]	0.01	0.01	.05*	0.01	0.01
Friends' support for abstinence	0.01	0.01	.04	-0.01	0.02
Friends' general social support[c]	0.03	0.01	.12**	0.02	0.04
Informal social connectedness	0.40	0.03	.29**	0.33	0.46
Civic engagement	0.51	0.03	.33**	0.44	0.57

* $p<.01$, ** $p<.001$; N = 1589

Notes: R^2 = .01 for Step 1, ΔR^2 = .07 for Step 2 (p <.001), ΔR^2 = .14 for Step 3 (p <.001), ΔR^2 = .24 for Step 4 (p <.001). [a]Desires for alcohol questionnaire, [b]Drug Taking Confidence Questionnaire, [c]Multidimensional Scale of Perceived Social Support

APPENDIX H

Statement of Contribution

All authors who meet authorship criteria are listed as authors on each publication. All authors contributed to the publications in development of concepts, design, analysis, writing or revision of manuscripts.

For Study 1 (Chapter 2), Breanna McGaffin contributed to 75% of the development of concept, design, data collection and analysis, drafting and revision of the manuscript. Professor Frank Deane contributed 15% of the development of concept, design, data collection and analysis, drafting and revision of the manuscript. Associate Professor Peter Kelly contributed to 5% of the development of concept, drafting and revision of the manuscript. Professor Joseph Ciarrochi contributed to 5% of the data analysis and drafting and revision of the manuscript.

For Study 2 and 3 (Chapter 3 and 4), Breanna McGaffin contributed to 80% of the development of concept, design, data collection and analysis, drafting and revision of the manuscripts. Professor Frank Deane contributed 10 % and Associate Professor Peter Kelly contributed 10% to the development of concept, design, data collection and analysis, drafting and revision of the manuscripts.